Email: cewwm@bwssb.gov.in

Ph: 080-22945106

ಬೆಂಗಳೂರು ನೀರು ಸರಬರಾಜು ಮತ್ತು ಒಳಚರಂಡಿ ಮಂಡಳಿ

BANGALORE WATER SUPPLY & SEWERAGE BOARD

O/o Chief Engineer(UWP), 5th Floor, Cauvery Bhavan, Bangalore-560009.

No. BWSSB/CE(UWP)/DCE(WWM-E&W)/TA-1/ 508/2025-26 Date : 30/01/26

ADDENDUM -1

Sub: Work of Design construction, commissioning of 20 MLD STP based on Integrated fixed – Film Activated sludge (IFAS) with BNR, with Tertiary Treatment and odour control units at Koramangala including Operation and Maintenance of 7 years.(Turnkey contract)-Call-2.

Ref: BWSSB/CE(UWP)/DCE(WWM-E&W)/TA-1/306/2025-26 Dt : 12-01-2026

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With reference to the above subject, invitation for this tender was invited vide IFT mentioned in reference letter this Addendum indicates the details of response to the pre bid queries.

Chief Engineer(UWP)
BWSSB

Encl: Replies Pre bid Queries

DESIGN, CONSTRUCTION, COMMISSIONING OF 20 MLD STP AT KORAMANGALA BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS INCLUDING 7 YEARS OPERATION AND MAINTENANCE (TURNKEY PROJECT) – 2nd Call

ADDENDUM-1

Amendment in Volumes be referred as under

<table>
<tr><th>Sr. No.</th><th>Tender Ref.</th><th>Existing Contents of Tender Document</th><th>Amended</th></tr>
<tr><td>1.</td><td>Volume-2/ Section-7, Cl.No. 5.21.1, Part 5-48</td><td>5.21.1 TSPS & STP Design/Sizing Criteria and Minimum Requirements.

<table><tr><th>Item/ Parameter/ Description</th><th>Units</th><th>20 MLD STP Koramangala</th></tr><tr><td>Disc Filter</td><td></td><td></td></tr><tr><td>Maximum Overflow Rate (at Decant Flow Rate)</td><td>m3/m2/h</td><td>10.0</td></tr></table></td><td>Shall be Read as

5.21.1 TSPS & STP Design/Sizing Criteria and Minimum Requirements.

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<tr><td>2.</td><td>Volume 2/ Section-7, Cl.No. 8.6, 8.6.13 Part 8-23</td><td>8.6 Induction Motors

8.6.13 Induction Motor (Submersible Pump & mixer)

Motor cooling for submersible pump must be achieved by internal cooling jacket, using the glycol water to cool the motor.</td><td>Shall be Read as

8.6 Induction Motors

8.6.13 Induction Motor (Submersible Pump & mixer)

Motor cooling for submersible pump must be achieved by internal cooling jacket, using the glycol water to cool the motor OR by surrounded liquid. Cooling Jacket shall be Stainless Steel (SS 304) for this application.</td></tr>
<tr><td>3.</td><td>Volume 2/ Section 7, Cl.No. 8.9, Part 8-38</td><td>8.9 Mechanical Medium Bar Screen-TSPS & ISPS

8.9.1 General
(a) The screen shall be installed in raw sewage inlet channel, and the screen shall be of the front raking type. Inclined Bar screen at</td><td>Shall Be Read as

8.9 Mechanical Medium Bar Screen-TSPS & ISPS

8.9.1 General</td></tr>
</table>

Addl. Chief Engineer (UWM-Project-East) BWSSB

CE (UWP) BWSSB

Sr. No.	Tender Ref.	Existing Contents of Tender Document	Amended
		75 degree and the minimum bar thickness shall be 16 mm x 20 mm with 50 mm width of the bar.	(a) The screen shall be installed in raw sewage inlet channel, and the screen shall be of the front raking type. Inclined Bar screen at 75 degree and the minimum bar thickness shall be **6 mm x 12 mm** with 50 mm width of the bar.
4.	**Volume 2/ Section 7, Cl.No. 8.10, Part 8-45**	**8.10 Mechanical fine Bar Screen-STP Inlet** The screen shall be installed in inlet channel to grit chamber, and the screen, shall consist of continuously moving perforated stainless steel panels. Inclined Bar screen at 75 degree and the minimum bar thickness shall be 6 mm x 10 mm & Width 40 mm. The aperture size of the screen shall be 6 mm and shall be of tapered section.	**Shall be Read as** **8.10 Mechanical fine Bar Screen-STP Inlet** The screen shall be installed in inlet channel to grit chamber, and the screen, shall consist of continuously moving perforated stainless steel panels. Inclined Bar screen at 75 degree and the minimum bar thickness shall be **4 mm x 10 mm** & Width 40 mm. The aperture size of the screen shall be 6 mm and shall be of tapered section.
5.	**Volume-1/Section-2/ITT/Clause 3.1.4**	**Personnel Capabilities** Contractor's Representative - 15 Years Project/Construction Manager – 12/15 Years Design Manager – 10 Years Asst .Construction Manager- Multidisciplinary Works – 10 Years	**Shall be Read as,** Contractor's Representative - 10 Years Project/Construction Manager – 05/08 Years Design Manager – 5 Years Asst .Construction Manager- Multidisciplinary Works – 5 Years
6.	**Volume-2/Section-7/Clause**	**Minimum Qualifications and Experience** Plant Manager – 10 Years Plant Operator cum Shift In charge – 7 Years	**Shall be Read as,** **Minimum Qualifications and Experience** Plant Manager – 5 Years

Addl. Chief Engineer
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CE (UWP)
BWSSB

DESIGN, CONSTRUCTION, COMMISSIONING OF 20 MLD STP AT KORAMANGALA BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS INCLUDING 7 YEARS OPERATION AND MAINTENANCE (TURNKEY PROJECT) – 2nd Call

ADDENDUM-1

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<tr><td></td><td>16.1.1</td><td colspan="4"></td><td colspan="4">Plant Operator cum Shift In charge – 5 Years</td></tr>
<tr><td>7.</td><td>Appendix-1 - Terms and Procedures of Payment</td><td colspan="4">Supply and Delivery of Plant and Equipment for Incorporation in the Permanent Works:</td><td colspan="4">Shall be Read as,
Supply and Delivery of Plant and Equipment for Incorporation in the Permanent Works:</td></tr>
<tr><td></td><td></td><td>• Supply and delivery to site of mechanical and electrical equipment, instrumentation, including pipes, valves, fittings and accessories.</td><td>P</td><td>60%</td><td>Progressive payment for supply, delivery to the site, proper storage and acceptance, up to 60% of the contract price for the relevant item. Supply and delivery of equipment at site shall be in line with the Civil work progress. Contractor shall not deliver equipment to site which will be idle at the site for more than three months without installation.</td><td>• Supply and delivery to site of mechanical and electrical equipment, instrumentation, including pipes, valves, fittings and accessories.</td><td>P</td><td>70%</td><td>Progressive payment for supply, delivery to the site, proper storage and acceptance, up to 60% of the contract price for the relevant item. Supply and delivery of equipment at site shall be in line with the Civil work progress. Contractor shall not deliver equipment to site which will be idle at the site for more than three months without installation.</td></tr>
<tr><td></td><td></td><td></td><td>LS</td><td>20%</td><td>LS payment on successful completion of installation and erection of the relevant item.</td><td></td><td>LS</td><td>10%</td><td>LS payment on successful completion of installation and erection of the relevant item.</td></tr>
<tr><td></td><td></td><td></td><td>LS</td><td>10%</td><td>LS payment on successful completion of the testing & commissioning, including rectifying any defects observed during this period,</td><td></td><td>LS</td><td>10%</td><td>LS payment on successful completion of the testing & commissioning, including rectifying any defects observed during this period.</td></tr>
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Chief Engineer (UWP)

Bangalore Water Supply and Sewerage Board,

Bangalore

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BWSSB

BANGALORE WATER SUPPLY AND SEWERAGE BOARD (BWSSB)

DESIGN, CONSTRUCTION, AND COMMISSIONING OF 20 MLD STP BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS AT KORAMANGALA INCLUDING 7 YEARS OF OPERATION & MAINTENANCE (TURNKEY CONTRACT) – 2nd Call

REPLIES TO PREBID QUERIES, PRE BID MEETING DATED: 19.01.2026

Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
1	Volume 2, Section 7, Part 5-43	Solid Loading Rate on IFAS Media (Max.) - 45 g/m²	Request to consider 55 g/m² to optimize the pro-ject cost.	Tender Conditions Prevails.
2	Volume 2, Section 7, Part 5-44	Diffuser Fouling Factor - 0.8	Request to revise to 0.92. to optimize the project cost	Tender Conditions Prevails.
3	Volume 2, Section 7, Part 5-45	Max. Airflow per Effective Area of Diffusers - 70 Nm³/hr./m²	Request to increase to 90 Nm³/hr./m². to optimize the project cost	Tender Conditions Prevails.
4	Volume 2, Section 7, Part 5-46	Diffuser Type - Tubular or Disc (fixed type)	Request inclusion of Strip Type Diffusers. As it is proven diffuser in combi-nation with IFAS	Tender Conditions Prevails.
5	Volume 2, Section 7, Part 5-47	Diffuser Membrane Mate-rial - EPDM or Silicon elastomer	Request for the addition of Polyurethane. As it has high life expectancy and a high SOTE	Tender Conditions Prevails.
6	Volume 2, Section 7, Part 5-48	Diffuser Arrangement - Fixed; diffuser length ≤1 m	Request permission for length up to 4 meters. This will help in optimizing the project cost	Tender Conditions Prevails.
7	Volume 2, Section 7, Part 5-49	Design SOTE per meter depth - 5.50%	Request to consider 6.0% per meters. This will help in optimizing the project cost.	Tender Conditions Prevails.
8	Volume 2, Section 7, Part 5-50	Total IFAS Media - 22,960 m²	Request flexibility; re-quirement is 17,200 m². This will help in optimizing the project cost and it is proven technology in India which is operating since 2015	Tender Conditions Prevails.
9	Volume 2, Section 7, Part 5-51	IFAS Media Placement - Middle 2/3rd of aerobic zone	Request flexibility for op-timal placement.	Tender Conditions Prevails.
10	Volume 2, Section 7, Part 5-52	Tank Volumes - Fixed tank sizes	We request BWSSB to al-low technology supplier to fix the anoxic and Aeration volumes, however total volume shall not exceed as mentioned in the tender..	Tender Conditions Prevails.
11	Volume 2, Section 7, Part 5-53	MOC of IFAS Cage - MOC: 316	To allow SS304 as the pH of MLSS will be between 6 to 8. Our plant is running in India for more than 10 Years	Tender Conditions Prevails.
12	Volume 2, Section 7, Part 5-54	Spare IFAS material - 5%	Not needed as life of IFAS is	Shall be provided during O&M Period.
13	Volume 2, Section 7, Part 5-55	Total Biomass (Maximum) - 4500	To all maximum 5500 MLSS, this will allow low-ering the footprint of aera-tion tank	Tender Conditions Prevails.
14	Volume 2, Section 7, Part 5-56	Testing of IFAS system before shipment - Testing required	Need clarification on what kind of testing needed on performance	Can be discussed during Detailed Engineering.
15	Volume 2, Section 7, Part 5-57	Scum Collection - Each IFAS tank shall be provided with dedicated Scum skimmer (Helical type / Rotating pipe type) which shall operate to remove surface scum and floatable material from anaerobic zone, anox-ic zone and aerobic zone	IFAS aeration tank shall not require any Scum skimmer as aeration tank is continuously aerated and mixed with ultrafine bub-ble diffusers. Request to eliminate this requirement.	Tender Conditions Prevails.
16	Volume 2, Section 7, Part 5-58	Flow from Aerobic zone to De-aeration zone for MLR pumps - Through overflow weir.	Please allow Through In-ternal recirculation pump	Tender Conditions Prevails.
17	Volume 2, Section 7, Part 5-59	N-1 condition - The Bidder shall provide calculations for operating the STP at De-sign Flow with 1 IFAS tank/unit/module of-fline for maintenance.	Generally, N-1 conditions are not considered for bio-logical reactors. Hence, we request BWSSB to allow technology provider to de-cide on it.	N-1 condition is not Mandatory.
18	Estimated cost of the Project	The estimated Capital cost is Rs 62.10 Crores & O & M cost is Rs. 11.50 Crores	We are preparing estimate of the project to quote our competitive offer. While going through the scope of work, technical specifications and terms and conditions, we have observed that our estimated cost is too high as compared to your estimated cost. In view of the same, we request you to review all our queries looking to the small capacity of Plant and minimum requirement to fulfil the process requirement and to achieve the guarantees as specified in the tender.	Tender Conditions Prevails.
19	Part - 6, General Electrical Requirements, Sec. 6.5, 415V Metal Enclosed Switchgear (PCC / MCC)	MCC / PCC panel boards shall be offered for final inspection at the OEM's works with routine tests.	As per the vendor list provided in the tender the Authorized System Integrators of the respective OEMs are also approved for manufacturing of the panels. We understand that the testing of the panels shall be done at the manufacturer's works and not at the principal OEM. Please confirm.	Confirmed.
20	Part - 6, General Electrical Requirements, Sec. 6.5, 415V Metal Enclosed Switchgear (PCC / MCC), 6.5.2 General	The LV switchboards shall be type tested assemblies (TTA) fully meeting the requirements of IEC 61439 – 1 & 2 for design verified assemblies. The eligible switchboard suppliers shall be Original Equipment Manufacturer (OEM) only with their own range of ACBs, MCCBs, Power Contactors & other switchgear devices. The switchboards shall be manufactured, design & tested by OEM at their own works.	As per the vendor list provided in the tender the Authorized System Integrators of the respective OEMs are also approved for manufacturing of the panels. We understand that the panels manufactured by the Authorized System Integrator of the OEM is also acceptable. Please confirm.	Confirmed.
21	Part - 6, General Electrical Requirements, Sec. 6.5, 415V Metal Enclosed Switchgear (PCC / MCC), 6.5.2 General, Pg. 6-32, Features of Construction, (a), (vi)	Thickness of CRCA Sheet the panel doors shall be 2.5mm or over and for the rest shall be 2.0mm or over	As a standard for TTA design assembly of respective vendors, the panels are manufactured with a CRCA sheet thickness of 2.0mm for doors and body and 1.6mm for internal partitions. We request you to consider the same.	Bidder may offer CRCA thickness as per TTA design.
22	Part - 6, General Electrical Requirements, Sec. 6.5, 415V Metal Enclosed Switchgear (PCC / MCC), 6.5.4 Intelligent motor protection relay	Intelligent motor protection relay	We understand that the LV panels are TTA assembly panels with regular starter and supply feeders. The mentioned motor protection relay is Microprocessor based motor protection device only. Please confirm.	Bidder understanding is correct with respect to motor protection relay.
23	Part - 6, General Electrical Requirements, Sec. 6.8.5, Page 6-46, Diesel Generating Set Automatic Control	Operating logic of the AMF panel.	The auto changeover logic during mains fail and mains restoration cannot be fulfilled as mechanical interlocks are to be provided between Mains Incomer, DG incomer and Bus coupler. The DG set can be started in auto mode during main failure and the power shall be available at the DG incomer breaker. The changeover has to be done manually. On mains restoration after the load is transferred on the mains power the DG set shall stop in auto mode after the cool down cycle. Please confirm.	Tender Conditions Prevails. Bidder to refer Vol 2, Part 12, Cl. No.12.4.9 for AMF panel operation logic.

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BANGALORE WATER SUPPLY AND SEWERAGE BOARD (BWSSB)

DESIGN, CONSTRUCTION, AND COMMISSIONING OF 20 MLD STP BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS AT KORAMANGALA INCLUDING 7 YEARS OF OPERATION & MAINTENANCE (TURNKEY CONTRACT) – 2nd Call

REPLIES TO PREBID QUERIES, PRE BID MEETING DATED: 19.01.2026

Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
24	Part - 6, General Electrical Requirements, Sec. 6.10.2, Configuration of VFD & Sec. 6.10.3 - Converter, Pg. no. 6-57	1) All VFD's shall be ultra-low Harmonic and shall have one of the two configurations given below Suitable for induction motor protection of all types confirming to IS 12615 / IEC 60034 / IS/IEC 60947/ IEC 947 2) Drives shall have ultra-low harmonic drive (ULH) to reduce harmonic reduction to less than 5% THDi (total harmonic distortion-current and voltage). Modern, compact, all-in-one solution that ensures harmonics are mitigated at source at all loads when connected to either a mains or generator supply.	As per IEEE 519 norms the total harmonics are measured at the Point of common coupling i.e at the main PCC incomer and not at individual VFD incomers. Bidder can provide suitable additional harmonic filters to limit the overall harmonics as per IEEE 519 norms. Please confirm.	Can be discussed during Detailed Engineering.
25	Part - 6, General Electrical Requirements, Sec. 6.10.12, Constructional Features of VFD Panels, Pg. no. 6-60	The drive rating 22kW and above there is a separate (VFD panel) panel shall be provided and installed in Air Condition room, it shall not club with PCC / MCC panels.	We suggest to place the VFD panels in ventilated rooms with proper de-ration of the VFDs. If the room is made Air Conditioned there will be no forced ventilation in the room and in case of failure of Air Condition there will be no air circulation which may create heating issues within the VFD panels. The ventilations shall be such that the ambient temperature is maintained near to the VFD design temperature. Please confirm.	Tender Conditions Prevails.
26	Part - 6, General Electrical Requirements, Sec. 6.11, Non Segregated Bus Duct	Bus duct shall be provided for all transformer/ DG ratings of 1000kVA and above	As the location of DG set may not be adjacent to the main panel room, providing bus duct shall not be possible. Kindly consider cables for connecting DG set with the main panel.	Tender Conditions Prevails.
27	Part - 6, General Electrical Requirements, Sec. 6.12.8, Junction Boxes, Pg. no. 6-70	For LT motors of 18kW and above, power junction boxes shall be provided where 3 core aluminium shall be terminated, and copper flexible cables shall be taken from it to the motor terminals.	It is not advisable to provide junction boxes for all motors of 18KW and above as it may lower the reliability during the regular O&M. All motors have large size cable termination box suitable for direct termination of aluminium cables. For submersible pumps a junction box shall be provided for all ratings. Please confirm.	Can be discussed during Detailed Engineering.
28	Part - 6, General Electrical Requirements, Sec. 6.16.1, Solar PV Rooftop system for street lighting only & 6.16.2, Centralized Solar Lighting System, (ii)	1) Solar PV Rooftop system for street lighting only 2) Batteries (for 12Hr back up) are to be provided for the solar system.	The two clauses are contradictory. As per clause 6.16.1, The solar roof top system shall be grid connected based on Net Metering Regulation of MPERC as amended up to date. Hence the storage batteries shall not be applicable. Please confirm.	The bidder may consider the Solar Roof Top PV system without grid connected type. Tender Conditions Prevails for other sections of the tender.
29	Part - 6, General Electrical Requirements, Vendor List of Electrical Items	11 kV Metal enclosed switchboards	Please consider the Authorized System integrators of the respective OEMs for manufacturing of 11 KV Metal enclosed Switchboards.	Applicable only for LT.
30	Volume - 3, Drawings	Electrical Single Line Diagrams	We understand that the Single Line Diagrams are for reference only. Bidder can design his own power distribution scheme based on the plant layout and equipment load. Please confirm.	Confirmed. Particular to Single Line Diagrams, the bidder may consider as reference for Bidding and Detail Engineering.
31	Part - 12, Particular Electrical Requirement, Sec. 12.4.9, Standby DG sets	Minimum 2 Nos. of Standby Generator sets shall be provided and sized for power back up for all the STP/TSPS loads (quantity as mentioned in Particular Mechanical Requirements) which are required for continuous operation of the corresponding STP/TSPS plant during main power failure. 10% contingency over these loads shall be considered while sizing the DG Set.	We understand that the loads which are critical for process operation are to be considered for DG set sizing along with the additional contingency. Also the no of DG sets shall be finalized based on the actual rating during detail engineering. Please confirm.	Can be discussed during Detailed Engineering.
32	Part - 12, Particular Electrical Requirement, Sec. 12.4.11, 415V Busduct	Bus duct shall be considered for handling short distance high current requirement i.e., from transformer secondary to 415V PCC / 415V Main LT panel & DG PCC panel to 415V PCC / 415V Main LT panel. Bus duct shall be considered for power requirements greater than 1000kVA.	As the location of DG set may not be adjacent to the main panel room, providing bus duct shall not be possible. Kindly consider cables for connecting DG set with the main panel.	Tender Conditions Prevails.
33	Part - 12, Particular Electrical Requirement, Sec. 12.4.16, Active Harmonic Filters	Active Harmonic Filters	We understand that bidder can provide suitable type of harmonic filters, active or tuned passive, as per the design and long term reliability to limit the overall harmonics of the system as per IEEE 519 norms. Please confirm.	Tender Conditions Prevails.
34	Part - 12, Particular Electrical Requirement, Sec. 12.5, Technical Particulars of MV Metal enclosed switchgear, 12.6.5, Switchgear Cubicle & Busbars, Point no. (K)	Bus bar insulation - Fully insulated by encapsulation in epoxy resin with mould caps protecting all joints.	We request to consider HT sleeve for busbar insulation instead of epoxy resin as it will be easy for maintenance during the entire period of O&M. Please confirm.	Tender Conditions Prevails.
35	Part - 12, Particular Electrical Requirement, Sec. 12.5, Technical Particulars of MV Metal enclosed switchgear, 12.6.5, Switchgear Cubicle & Busbars, Point no. (J)	Bus bar material - Copper.	Based on the gaseous environment of the STP, we request to consider Aluminium Busbars for all MV panels as Aluminium is more suitable than Copper for this kind of environment. Please confirm.	Tender Conditions Prevails.

Addl. Chief Engineer (WWM-Project-East) BWSSB

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DESIGN, CONSTRUCTION, AND COMMISSIONING OF 20 MLD STP BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS AT KORAMANGALA INCLUDING 7 YEARS OF OPERATION & MAINTENANCE (TURNKEY CONTRACT) – 2nd Call

REPLIES TO PREBID QUERIES, PRE BID MEETING DATED: 19.01.2026

Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
36	Part - 12, Particular Electrical Requirement, Sec. 12.5, Technical Particulars of MV Metal enclosed switchgear, 12.6.6, Switchgear Constructional Requirement, Point no. (a)	Thickness of sheet steel for Frame - 2.5mm Thickness of sheet steel for Doors / covers / Partitions - 2.0mm	As a standard product design of respective vendors, the panels are manufactured with a CRCA sheet thickness of 2.0mm for doors and body and 1.6mm for internal partitions. We request you to consider the same.	Bidder may offer CRCA thickness as per TTA design.
37	Part - 12, Particular Electrical Requirement, Sec. 12.7, Technical Particulars of 415V Metal enclosed switchgear 12.8.5, 415V Switchgear & Busbar rating, Point no. (E)	Bus bar material - Copper.	Based on the gaseous environment of the STP, we request to consider Aluminium Busbars for all LV panels (PCC / MCC & APFC Panels) as Aluminium is more suitable than Copper for this kind of environment. Please confirm.	Tender Conditions Prevails.
38	Part - 12, Particular Electrical Requirement, Sec. 12.7, Technical Particulars of 415V Metal enclosed switchgear 12.8.5, 415V Switchgear & Busbar rating, Point no. (f)	Bus bar insulation - Fully insulated by encapsulation in epoxy resin with mould caps protecting all joints.	We request to consider PVC colour coded sleeve for busbar insulation instead of epoxy resin as it will be easy for maintenance during the entire period of O&M. Please confirm.	Tender Conditions Prevails.
39	Part - 12, Particular Electrical Requirement, Sec. 12.7, Technical Particulars of 415V Metal enclosed switchgear 12.8.6, Switchgear Constructional requirement, Point no. (h)	Cable Entry	We request to consider cable entry for the panels as TOP or Bottom as per site condition. Please confirm.	Tender Conditions Prevails.
40	Part - 12, Particular Electrical Requirement, Sec. 12.10, Technical Particulars of Variable Frequency Drives 12.11.6, Type of Duty	150% Overload for 2 minutes once in period of 24 Hours	The Heavy Duty application rating of the VFDs manufactured by various manufacturers is 150% overload for 60 seconds. Kindly consider the same.	Bidder may consider. Tender Conditions Prevails.
41	Part - 12, Particular Electrical Requirement, Sec. 12.10, Technical Particulars of Variable Frequency Drives 12.11.8, Overall Harmonic Limitation (THDi)	Less than 5%	As per IEEE 519 norms the total harmonics are measured at the Point of common coupling i.e at the main PCC incomer and not at individual VFD incomers. We request to consider the overall harmonic limitation of the system by installing additional harmonic filters as applicable. Please confirm.	Can be decided during Detailed Engineering.
42	Part - 12, Particular Electrical Requirement, Sec. 12.3, Power Supply Arrangement, Pg. No. 12-4, Requirement of Power Consumption	The Bidder shall clearly indicate the guaranteed daily power consumption for the proposed works in Technical Schedule-X. The guaranteed value shall be expressed in kWh/day and shall not fall above the 5% of the budgeted benchmark power consumption of 11,250 kWh/day for 20 MLD STP at Kadugodi as stipulated by the Employer. The Bidder shall also provide detailed load list calculations in the prescribed format only to substantiate the power consumption.	Refer to the Power consumption requirement mentioned in the stated clause of Part 12, please note that the Guarantee for Power consumption in KWH / day shall be specified by the bidder only. Any kind of guarantees for the power consumption mentioned in the specifications is not acceptable. Bidder shall provide his own guarantee for power consumption in Technical Schedule X - Functional Guarantees, which shall only be applicable and the same shall govern. Please confirm.	The benchmark values provided in tender are indicative. However, the bidder has to give the guarantees the minimum power generation as per relevant technical schedule.
43	Part - 6, General Electrical Requirement, Sec. 6.4, MV Metal Enclosed Switchboards & Switchgears, Point, 6.4.20, Busbars	Busbars	Based on the gaseous environment of the STP, we request to consider Aluminium Busbars for all MV panels as Aluminium is more suitable than Copper for this kind of environment. Please confirm.	Tender Conditions Prevails.
44	Part - 6, General Electrical Requirement, Sec. 6.5, 415V Metal Enclosed Switchgears (PCC / MCC), Page 6-32, Point (c) Main & Auxiliary Buses	Busbars	Based on the gaseous environment of the STP, we request to consider Aluminium Busbars for all 415V panels (PCC / MCC & APFC Panels) as Aluminium is more suitable than Copper for this kind of environment. Please confirm.	Tender Conditions Prevails.
45	Volume 2 / Section 7 Part 8- 140	(d) Hydraulic Losses The frictional losses due to fluid flow in pipe work shall be computed, based on the Hazen- William formula using C=110	We request you to allow the bidder to consider the Hazen willam Formula C Value as per CPHEEO Manual. Kindly Confirm.	Can be discussed during Detailed Engineering.
46	Volume 2 / Section 7 Part 5- 20	• Maximum pipe flow velocity shall be less than 1.0 m/s for all the gravity flow lines at peak flow conditions. • Maximum pipe flow velocity shall be less than 1.0 m/s for all the pump suction lines. • Maximum pipe flow velocity shall be less than 1.5 m/s for all the pumped discharge lines.	We request you to allow • Maximum pipe flow velocity shall be less than 1.2 m/s for all the gravity flow lines at peak flow conditions. • Maximum pipe flow velocity shall be less than 1.2 m/s for all the pump suction lines. • Maximum pipe flow velocity shall be less than 2.0 m/s for all the pumped discharge lines.	Can be discussed during Detailed Engineering.

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BWSSB

BANGALORE WATER SUPPLY AND SEWERAGE BOARD (BWSSB)

DESIGN, CONSTRUCTION, AND COMMISSIONING OF 20 MLD STP BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS AT KORAMANGALA INCLUDING 7 YEARS OF OPERATION & MAINTENANCE (TURNKEY CONTRACT) – 2nd Call

REPLIES TO PREBID QUERIES, PRE BID MEETING DATED: 19.01.2026

Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
47	Volume 2 / Section 7 Part 1- 5	**Grit for Disposal** Organic Content in Grit (Daily maximum) - ≤ 3 (± 0.5%)	We request you to allow Grit for Disposal Organic Content in Grit (Daily maximum) - ≤ 5 (+ 0.5%) as it is allowed in other BWSSB Tender for e.g., 100 MLD STP Doddabele Tender.	Noted.
48	Part 8 General Mechanical Requirements	General Electro Mechanical Requirements	The specifications for each item provided under the general requirements for mechanical and Electrical equipment represent a combination of various makes. In many cases, a single manufacturer may not fully meet all specifications, which can lead to delays during detailed engineering and datasheet approvals due to this ambiguity. Since manufacturers often cannot customize extensively, we kindly request your confirmation that these specifications are intended for reference only, and that detailed specifications may vary according to the manufacturer's standard practices.	Noted. The specifications indicated with respect to the overall project requirements and performance required shall be reviewed during the detailed engineering stage and suitable decision shall be taken in the event of any ambiguity between specs and approved/alternate makes
49	part 5, page part 5-12, Part 8 page 8-123 & 8-124, clause 8.42.4, table 8.1	Type / MOC of all Pipes. On page 5-12, at various places, different MOC along with different requirement for different pipes are provided. Whereas in Part 8 General Mechanical requirements different pipe MOC for specific application is specified	Kindly confirm that type/ MOC of pipes as given in Part 8 General mechanical requirements, clause 8.42.4 - materials for pipelines page 8-123 & page 8-124, Table 8.1 shall only govern. Kindly confirm	As such we have not found any such major discrepancy. However, the technical requirements provided shall be followed as written in Part 5 followed by Part 8 .
50	Part 5, Process requirements, page 5-16	Clause 5.13 The hydraulic design	Kindly confirm that this is applicable to only for design of pipes, gates, valves and channels only and not application for process units	Tender Conditions Prevails. The hydraulic requirements shall be followed to meet the hydraulic requirements of the plant.
51	Part 5, process requirement, Part 11- major equipment list	Part 5 -Process requirement and Part 11, major equipment list	As the tender is invited on turnkey basis with design and engineering including civil mechanical, instrumentation and electrical works, it is crucial that tender allows flexibility for bidders to propose his own design based on his vast experience or as per criteria specified in CPHEEO / Metcalf eddy as per standard design practice or in some cases as per specialized equipment system manufacturer's (e.g. disk filter, turbo blower , gas engine, dewatering decanter etc) or technology provider's recommendation. Therefore, please confirm that the size / volume of various units as well as equipment list with its capacity etc provided in the bid are only indicative and shall be as per bidder's design furnished for approval after award of work.	Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO /International standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.
52	VOLUME 1 of 4 (GENERAL REQUIREMENTS) CONDITIONS OF CONTRACT 39. Tax Page No. 68	39.1 The rates quoted by the Contractor shall be deemed to be exclusive of all taxes (GST) that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law.	As per this clause Bidders are instructed to bid exclusive of GST, whereas in other clause namely 11.3 under clause 11.1 Tender Price on page no 18 has specified to include GST in Bid Price. Kindly clarify whether Tenderer has to Bid excluding GST or not.	Quoted rates are exclusive of GST.
53	VOLUME 1 of 4 (GENERAL REQUIREMENTS) SECTION 4: INSTRUCTION TO TENDERER 11.3 Tender Prices Page No. 18	11.3 All taxes (GST) payable by the contractor under the contract, or for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Tenderer.	As per this clause Bidders are instructed to bid inclusive of GST, whereas in clause 39. on page no 68 has specified to exclude GST in Bid Price. Kindly clarify whether Tenderer has to Bid excluding GST or not.	Quoted rates are exclusive of GST.
54	Part 8, 8.55.6, Documentation, Pg No. - 8- 161	The following information shall as a minimum be submitted with the proposal. The accuracy and completeness of the submission of all the requested data will form part of the tender evaluation. All information shall be submitted in both hard copy originals and as an electronic copy. • Compliance statement to this technical specification. • Manufacturer company profile • Local supplier company profile • Basic description of proposed OCU system, including process flow description. • The Tenderer's Scope of Supply, including limits of contract and any assumptions made by the Tenderer. • List of main equipment items, motor list, and instrument list. • Details of media offered, including media life guarantee and data sheet. • Reference lists of similar installations demonstrating manufacturer previous experience.	We request you to allow bidder to submit these documents during detail engineering. Kindly confirm.	Bidder to submit the Basic technical details as specified in the Tender. However Manufacturer Company profile may be submitted during detailed Engineering.
55	Part -5 Process Requirement, 5.21.1, Pg No. - 5- 38	Fine Screens and Channels Screen type - Multirake type bar screen with mechanical cleaning and auto jam removal	We request you to also allow Step Type Fine Screen (Screen Mat) along with Multitrack screen both type of screen was allowed in recent 100 MLD STP Doddabele Tender of BWSSB. We also request you to provide technical specification of Step Type Mechanical Fine Screen having 2mm Flat thickness - SS 304 and 6 mm Clear Spacing. Kindly Confirm.	Can be discussed during Detailed Engineering.

Addl. Chief Engineer (WWM-Project-East) BWSSB

Chief Engineer (UWP) 5th Floor, Cauvery Bhavan BWSSB

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56	Part -5 Process Requirement, 5.21, Pg No. - 5-33	a) All the process unit sizes/volumes specified are minimum. b) All the building dimensions (or Area when calculated) specified are minimum; However, Contractor may upsize these dimensions (or Area when calculated) based on design to meet the specified tender requirements.	We request that the size / volume of various units as well as equipment list with its capacity etc. provided in the bid to be considered as indicative and not minimum requirement. Bidder be allowed to design plant / equipment / units as per criteria indicated in Metcalf Eddy / CPHEEO manual to meet the final treated effluent requirements. Kindly confirm.	Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.
57	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-4	D 1.00 Air Blower Building - Centrifugal Turbo Blower with VFD Control	We request you to also allow Twin / trilobe roots type blower for process air requirements along with turbo blowers. Kindly Confirm.	The blowers for Air Diffusers system shall be Turbo Blower/Tri Lobe type, Bidder shall ensure noise level as Per IS Code to be maintained, with necessary acoustic arrangement to be Provided by the bidder.
58	Part -5 Process Requirement, 5.21.1, Pg No. - 5-47	Type of pump - Horizontal/Vertical Centrifugal solid handling dry pit	We request you to also allow Submersible type of pump for Return Activated Sludge Application (RAS). Kindly Confirm.	Tender Conditions Prevails.
59	Part -5 Process Requirement, 5.21.1, Pg No. - 5-45	Alum Mixer at dosing point, Alum Dosing System	We understand that if chemical dosing is not required as per process design then there is no requirement to provide Alum Dosing System, Alum Dosing Tanks, Alum Dosing Mixture and Alum Dosing pumps. Kindly confirm.	Chemical Building can be associated with Process Building.
60	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-6	H Sludge Handling Units Decanter Centrifuge - 2 Working, 1 Standby	We request you to allow bidder to design 1 Working and 1 Standby capacity of Dewatering Centrifuge, so that building sizes can be minimized. Kindly Confirm.	Tender Conditions Prevails
61	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-6	H Sludge Handling Units Centrifuge Feed Pumps - 2 Working, 1 Standby	We request you to allow bidder to design 1 Working and 1 Standby capacity of Centrifuge Feed Pumps, so that building sizes can be minimized. Kindly Confirm.	Can be discussed during Detailed Engineering.
62	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-7	L Odour Control Units OCU 1 - Near TSPS OCU 2 - Near Head Works OCU 3 - Near sludge handling units	We request you to allow bidder to provide 1 no. common Odour Control system, as per bidders design for Pumping station, Inlet chamber of STP and Sludge system. Kindly Confirm.	Can be discussed during Detailed Engineering.
63	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-4	C Secondary Treatment EOT Crane - 5.00 MT	We request you to allow bidders to design, lifting requirement for deareation tank as per his own design and EOT Crane - 5 MT should not be mandatory. Kindly Confirm.	Bidder shall consider capacity as minimum of 1.5 times of the heaviest equipment that should be lifted in that particular area.
64	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-5	D Air Blower Building EOT Crane - 7.00 MT	We request you to allow the capacity of the EOT Crane for the lifting purpose as 1.5 times the weight of the heaviest component to be lifted. Kindly Confirm.	Noted and Confirmed.
65	PART 3 GENERAL REQUIREMENTS, 3.16.4 Bid Drawings and Details, Pg No. - 3-16	(b) Mechanical (ii) To-scale dimensional layout and/or installation drawings for the following Equipment, at a minimum: • Raw Sewage Pump sets • Coarse and Fine screens • Vortex Grit Chamber • RAS/WAS Pumps • Submersible Mixers • IFAS media • Secondary Clarifiers • Fine Bubble Diffusers (fixed/retrievable) • Disc Filtration System • Chlorination system • Decanter Centrifuge • Other equipment	We request you to allow bidder to submit these drawings during detail engineering and not with the Technical bid. Kindly Confirm.	Agreed.

Addl. Chief Engineer
(WWM-Project-East)
BWSSB

Chief Engineer (UWP)
5th Floor, Cauvery Bhavan
BWSSB

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<tr><td>66</td><td>Part 5 Process requirements, Table 5.21.1, Pg. No. 5-41</td><td>Overall Tank Dimensions
Volume required -Total m3 14299.20
No of Tanks - Working Nos 2.00
Side water depth (Maximum) m 6.00
width of tank m 18.00
Length for aerobic zone m 40.80
Length for for anoxic zone m 19.50
Length for Anaerobic zone m 5.90
Total Length (Anaerobic+Anoxic+Aerobic) m 66.20
Free board m 0.60
<table><tr><th>Item/ Parameter/ Description</th><th>Units</th><th>20MLD STP at Kadugodi</th></tr><tr><td>No of Tanks - Working</td><td>Nos</td><td>2.00</td></tr><tr><td>Side water depth (Maximum)</td><td>m</td><td>6.00</td></tr><tr><td>width of tank</td><td>m</td><td>18.00</td></tr><tr><td>Length for aerobic zone</td><td>m</td><td>40.80</td></tr><tr><td>Length for for anoxic zone</td><td>m</td><td>19.50</td></tr><tr><td>Length for Anaerobic zone</td><td>m</td><td>5.90</td></tr><tr><td>Total Length (Anaerobic+Anoxic+Aerobic)</td><td>m</td><td>66.20</td></tr><tr><td>Free board</td><td>m</td><td>0.60</td></tr></table></td><td>We request you to allow the Bidder to design and provide the IFAS system as per his own design and detail Engineering and also as per Technology provider. The provided volume 14,299.20 m^3 and the HRT of the aeration tank is worked out to be approx. 10.5 Hours which seems to be very high. You can please refer Metcalf and eddy (5th Edition) book page No. 1006, Table 9-12, wherein it is mentioned that Aerobic hydraulic retention time is required as 5.0 hours. Hence we request you to allow the bidder and technology provider to design the IFAS system as per his own design to optimize the size of the tanks.</td><td>Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.</td></tr>
<tr><td>67</td><td>Part 5 Process requirements, Table 5.21.1, Pg. No. 5-41</td><td>Overall Tank Dimensions
Volume required -Total m3 14299.20
No of Tanks - Working Nos 2.00
Side water depth (Maximum) m 6.00
width of tank m 18.00
Length for aerobic zone m 40.80
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Total Length (Anaerobic+Anoxic+Aerobic) m 66.20
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<table><tr><th>Item/ Parameter/ Description</th><th>Units</th><th>20MLD STP at Kadugodi</th></tr><tr><td>No of Tanks - Working</td><td>Nos</td><td>2.00</td></tr><tr><td>Side water depth (Maximum)</td><td>m</td><td>6.00</td></tr><tr><td>width of tank</td><td>m</td><td>18.00</td></tr><tr><td>Length for aerobic zone</td><td>m</td><td>40.80</td></tr><tr><td>Length for for anoxic zone</td><td>m</td><td>19.50</td></tr><tr><td>Length for Anaerobic zone</td><td>m</td><td>5.90</td></tr><tr><td>Total Length (Anaerobic+Anoxic+Aerobic)</td><td>m</td><td>66.20</td></tr><tr><td>Free board</td><td>m</td><td>0.60</td></tr></table></td><td>We request you to allow the Bidder to design and provide the IFAS system and BNR removal system as per his own design and detail Engineering and also as per Technology provider. The provided volume 14,299.20 m^3 and the HRT of the anoxic tank is worked out to be approx. 5.0 Hours which seems to be very high. Hence we request you to allow the bidder and technology provider to design the IFAS system and BNR removal system as per his own design to optimize the size of the tanks.</td><td>Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.</td></tr>
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Addl. Chief Engineer (WWM-Project-East) BWSSB

Chief Engineer (UMD) Sth Flag Colvery BWSSB

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<tr><td>68</td><td>Part 5 Process requirements, Table 5.21.1, Pg. No. 5-42</td><td>MLR Pumps
MLR Ratio at average flow Times 4.50
No of working MLR pumps-Total Nos 2.00
No of standby MLR pumps-Total Nos 2.00
Capacity of each pump m3/h 1900.00
Design Flexibility for MLR Pumping
Design shall provide to route 100% of
MLR to anoxic zones and flexibility to
route up to 50% to the anaerobic zones.
Type of Pump Submersible / Tube Installed
<table><tr><td>MLR Pumps</td><td></td><td></td></tr><tr><td>MLR Ratio at average flow</td><td>Times</td><td>4.50</td></tr><tr><td>No of working MLR pumps-Total</td><td>Nos</td><td>2.00</td></tr><tr><td>No of standby MLR pumps-Total</td><td>Nos</td><td>2.00</td></tr><tr><td>Capacity of each pump</td><td>m3/h</td><td>1900.00</td></tr><tr><td>Design Flexibility for MLR Pumping</td><td></td><td>Design shall provide to route 100% of MLR to anoxic zones and flexibility to route up to 50% to the anaerobic zones.</td></tr><tr><td>Type of Pump</td><td></td><td>Submersible / Tube Installed</td></tr></table></td><td>The MLR Ratio provided is 4.5 times the average flow the provided ratio seems to be very high and Hence, we request you to allow the bidder and technology provider to design the IFAS system and BNR removal system as per his own design to optimize the size of the pumping machinery.</td><td>Tender Conditions Prevails. However same can be discussed during Detailed engineering.</td></tr>
<tr><td>69</td><td>Part 5 Process requirements, Table 5.21.1, Pg. No. 5-42</td><td>De-aeration zone (Volume included in aerobic zone)
No of Tanks - Working Nos 2.00
Side water depth (Maximum) m 5.70
width of tank m 3.00
length of tank m 12.30
Free board m 0.60
Volume provided to each de-aeration zone m3 210.33
<table><tr><td>De-aeration zone (Volume included in aerobic zone)</td><td></td><td></td></tr><tr><td>No of Tanks - Working</td><td>Nos</td><td>2.00</td></tr></table></td><td>We request you to allow the bidder and technology provider to design the IFAS system and BNR removal system as per his own design to optimize the size of the deaeration tanks.</td><td>Tender Conditions Prevails</td></tr>
</table>

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<tr><td>70</td><td>Part 5 Process requirements, Table 5.21.1, Pg. No. 5-43</td><td><u>IFAS Media</u>
IFAS media type Aerobic, Submerged high-density biotextile IFAS media in SS 316 Cages, IFAS media life (Minimum) Years 20.00, IFAS media location in aerobic zone
Mostly, IFAS media shall be placed in middle two-third of the aerobic zone. And no media shall be placed in last one-fourth
of the aerobic zone, IFAS cage arrangement in aerobic zone Staggered arrangement, MOC of IFAS cage SS 316, Minimum thickness of cage used for IFAS media mm 6.00, Minimum Void Fraction of IFAS media % 90.00, Minimum density of IFAS media 0.97, Maximum attached MLSS on IFAS media mg/L 2000.00, Solid loading rate on IFAS media (Maximum) g/m2 45.00, Effective area of IFAS media (Maximum) % 65.00
<table><tr><td>IFAS Media</td><td></td><td></td></tr><tr><td>IFAS media type</td><td></td><td>Aerobic, Submerged high-density bio-textile IFAS media in SS 316 Cages</td></tr><tr><td>IFAS media life (Minimum)</td><td>Years</td><td>20.00</td></tr><tr><td>IFAS media location in aerobic zone</td><td></td><td>Mostly, IFAS media shall be placed in middle two-third of the aerobic zone. And no media shall be placed in last one-fourth of the aerobic zone</td></tr><tr><td>IFAS cage arrangement in aerobic zone</td><td></td><td>Staggered arrangement</td></tr><tr><td>MOC of IFAS cage</td><td></td><td>SS 316</td></tr><tr><td>Minimum thickness of cage used for IFAS media</td><td>mm</td><td>6.00</td></tr><tr><td>Minimum Void Fraction of IFAS media</td><td>%</td><td>90.00</td></tr><tr><td>Minimum density of IFAS media</td><td></td><td>0.97</td></tr><tr><td>Maximum attached MLSS on IFAS media</td><td>mg/L</td><td>2000.00</td></tr><tr><td>Solid loading rate on IFAS media (Maximum)</td><td>g/m2</td><td>45.00</td></tr><tr><td>Effective area of IFAS media (Maximum)</td><td>%</td><td>65.00</td></tr><tr><td>Spare IFAS media (Minimum)</td><td>%</td><td>5.00</td></tr></table></td><td>We request you to allow the bidder and technology provider to design the IFAS system and BNR removal system as per his own design to optimize the quantity of the media. Also request you to allow the bidder to design the IFAS system as per Technology provider and International standard references.</td><td>Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.</td></tr>
<tr><td>71</td><td>Part 11 Major Equipment List, Table 11-1, Pg. No. 11-4</td><td>Total area of the IFAS media:
22960 m^2,
Total area of the IFAS media: 22960m2, MOC of the IFAS cage: SS 316, Minimum thickness of the IFAS cage: 6mm.</td><td>Tender has provided the quantity of the total IFAS media we request you to allow the bidder and technology provider to design the IFAS system and BNR removal system as per his own design to optimize the quantity of the media. Also request you to allow the bidder to design the IFAS system as per Technology provider and International standard references.</td><td>Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender</td></tr>
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72	Part 5 Process requirements, Table 5.21.1, Pg. No. 5-43	<table><tr><th>Process Air Blowers with acoustic hood</th><th></th><th></th></tr><tr><td>Oxygen demand at average flow (AOTR)</td><td>kg/d</td><td>11350.00</td></tr><tr><td>Peak Oxygen Demand Factor</td><td>-</td><td>130</td></tr><tr><td>Oxygen demand at peak flow(AOTR)</td><td>kg/h</td><td>615.00</td></tr><tr><td>Aeration system sizing basis process liquid temperature</td><td>°C</td><td>27.00</td></tr><tr><td>Minimum DO Level of Aeraton basin</td><td>mg/L</td><td>200</td></tr><tr><td>α: Oxygen Transfer Correction Factor</td><td>-</td><td>060</td></tr><tr><td>β: Salinity - Surface Tension Correction Factor</td><td>-</td><td>095</td></tr><tr><td>F: Fouling Factor</td><td>-</td><td>080</td></tr><tr><td>Effective Aeration Depth</td><td>m</td><td>575</td></tr><tr><td>AOTR / SOTR Ratio</td><td></td><td>0.399</td></tr><tr><td>Design SOTE per m depth of water (Minimum to be provided from vendor and maximum to be used as design basis)</td><td>% /m</td><td>5.50</td></tr><tr><td>Safety factor for fouling due to IFAS</td><td></td><td>1.25</td></tr><tr><td>Blower capacity provided at Field Condition (Blower Inlet Temperature 45°C)</td><td>m3/h (at Inlet)</td><td>13200.00</td></tr><tr><td>Total number of working blowers</td><td>Nos</td><td>2.00</td></tr><tr><td>Total number of standby blowers</td><td>Nos</td><td>1.00</td></tr><tr><td>Blower type</td><td>-</td><td>Centrifugal Turbo Blower with VFD Control</td></tr><tr><td>Minimum Thickness of Acoustic Hood</td><td>mm</td><td>100.00</td></tr><tr><td>Type of Aeration</td><td>-</td><td>Diffused Aeration</td></tr></table>	We request you to allow the bidder and technology provider to design the IFAS system and BNR removal system requirement of the process air as per his own design to optimize the quantity of the media. Also request you to allow the bidder to design the IFAS system as per Technology provider and International standard references.	Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.
73	Part 5 Process requirements, Table 5.21.1, Pg. No. 5- 48	Disc filter	We understand that provision of a fine filtration system is mandatory under the tender. However, bidders may propose any suitable fine filtration technology as per their process design, provided it achieves the guaranteed outlet parameters of BOD ≤ 10 mg/L and TSS ≤ 10 mg/L. Kindly confirm if this interpretation is correct.	Tender Conditions Prevails.
74	Part 5 Process requirements, Table 5.21.1, Pg. No. 5- 34	Odour levels and Noise levels	Kindly remove the requirement of odour level at outlet of odour control unit and plant boundary. We also request you to remove noise levels within process buildings and plant boundary from the outlet requirements	Both removed at Plant Boundary
75	Part 5 Process requirements, Table 5.21.1, Pg. No. 5- 51	Centrifuge feed sump - Top of the sump shall be covered with RCC slab with access manholes and staircase with submersible mixers for mixing	Please allow open sump for ease of maintenance of mixers during O&M.	Tender Conditions Prevails.
76	Part 5 Process requirements, Table 5.21.1, Pg. No. 5- 52	Bulk Poly Storage Days 30.00	Poly storage of 30 days for the capacity specified is huge. We request that storage duration be revised to 15 days requirement.	Bidder can choose 15 days storage duration.
77	PART 5 PROCESS REQUIREMENT	MOC of wetted parts Primary, Secondary clarifier mechanisms	We understand MOC of the wetted parts of primary and secondary clarifier mechanisms shall be MS Epoxy painted. Kindly confirm.	Tender Conditions Prevails.
78	PART 1 PROJECT DETAILS, 1.3 Scope of Work, Pg. No. - 1- 3	Design, construction, and commissioning of all pipelines, flow meters, channels, outfall structure for the disposal of plant effluent from chlorine contact tank to nearby water body at site complete.	We request you to furnish approximate length of disposal line for disposal of treated plant effluent from STP to nearby water body.	Bidder to Field verify.
79	PART 8 GENERAL MECHANICAL REQUIREMENTS	MOC of all Mechanical Equipments/ Process Equipments is given SS 316/ SS 316 L	We request to allow bidder to consider MOC of SS 304 for all Mechanical Equipments/ Process Equipments; except for Clarifier and Thickener. As, MOC for Clarifier and Thickener to be considered as MSEP. Kindly Confirm.	Tender Conditions Prevails.
80	PART 8 GENERAL MECHANICAL REQUIREMENTS, 8.18.1 Tubular Type Diffusers, Pg. No. - 8- 62	MOC of Air Pipe Drop Leg is given SS 316	We request to allow bidder MOC of SS 304 for Air Pipe Drop Leg. Kindly Confirm.	Tender Conditions Prevails.
81	PART 8 GENERAL MECHANICAL REQUIREMENTS, 8.9 Mechanical Medium Bar Screen-TSPS & ISPS, Pg. No. - 8- 38	8.9.1 General (a) The screen shall be installed in raw sewage inlet channel, and the screen shall be of the front raking type. Inclined Bar screen at 75 degree and the minimum bar thickness shall be 16 mm x 20 mm with 50 mm width of the bar.	We request to change thickness to 10mm x 6 mm with 50mm width of the bar. Kindly Confirm.	Confirmed.
82	General	MOC of Disposal pipe and Bypass pipe	We understand MOC of Disposal pipe and Bypass pipe shall be RCC NP3. Kindly Confirm.	Confirmed.

Addl. Chief Engineer (WWM-Project-East) BWSSB

Chief Engineer (UWP) 5th Floor, Cauvery Bhavan BWSSB

BANGALORE WATER SUPPLY AND SEWERAGE BOARD (BWSSB)

DESIGN, CONSTRUCTION, AND COMMISSIONING OF 20 MLD STP BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS AT KORAMANGALA INCLUDING 7 YEARS OF OPERATION & MAINTENANCE (TURNKEY CONTRACT) – 2nd Call

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83	PART 8 GENERAL MECHANICAL REQUIREMENTS,8.37 Valves, 8- 104	MOC of internal parts of all Valves is given SS 316	We request to allow bidder for MOC of SS 304 for all Valves. Kindly Confirm.	Tender Conditions Prevails.
84	Part 8 General mechanical requirements, 8.22 IFAS Treatment, Pg. No. 8-82	Spare Media of 5% shall be supplied and maintained for O&M Period.	The life of Biotextile for IFAS is minimum 10 years as per our vast experience of execution of about 10 STPs ranging upto 140 MLD for quantity / quality upgradation. Hence 5% additional spare is not required. Please confirm	Shall be provided during O&M Period.
85	Part 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS, STP	Lifting Requirement	We request you to allow the Monorail hoist (Electric) for the lifting purpose at TSPS, Process Air blower, Chlorine Shed and at other pumps houses in place of crane. This will optimize the height of the building. Kindly confirm.	Refer replies furnished elsewhere.
86	Part 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS, STP	Lifting Requirement	We request you to allow the capacity of the Monorail hoist (Electric) for the lifting purpose as 1.5 times the weight of the heaviest component to be lifted. Kindly confirm.	Confirmed.
87	Volume 2 / Section 7 Part 3 General Requirements 3.10.1 Engineer's staff site office	A separate office (temporary in nature) with toilet facilities for the sole use of the Engineer, his staff and Consultant shall be provided by the Contractor at STP site. 50 sq.m and with equipment, furniture and furnishings as mentioned on page 3-9 to 3-12	To optimise the cost, we request you to allow two nos standard size (20ft x 8 ft) portable cabins with standard furniture and furnishing and also minimise the equipment's to be provided against the list mentioned in the tender. Kindly confirm	Tender Conditions Prevails.
88	Volume 2 / Section 7 Page 1-4, Page 5-7 & Part 10 B-23	**1.4 Additional scope details for civil works** a) The length of 410m and clear width 5m of the plant internal roads shall be provided as indicated in plant layout. Refer Volume 3 of Drawings. **5.11 Design of plant layout:** -All the roads shall have minimum width of 5.0m (excluding side shoulders) and minimum Curb radius of 5.0m. **1.23 Roadways, Pathways & Hard standings** : All the roads shall have minimum width of 5.0m (excluding side shoulders) and minimum Curb radius of 5.0m.	We presume that 4 m width of internal road is sufficient as provided in other projects of BWSSB. Kindly confirm	All Internal roads shall be 4.0 m with 1.5m shoulder
89	Volume 2 / Section 7 Part 3-13	**3.10.5 Instruments to be Provided:** -The Contractor shall provide at his own cost for the exclusive use of the staff of the Engineer all survey equipment and measuring instruments of approved make and of every kind necessary for the execution of the Works. a) Total station with full setup and software b) Two auto level, tripods with carrying case c)Two staffs, 4.5 m long, each in 3 sections and with attached bubbles, graduated in metres and tenth and hundredths of a metre. d)Two Surveyor's steel bands of which one shall be 100 m long and approximately 20 mm wide and one shall be at least 30 m long and approximately 12 mm wide, each fully divided, complete with tape thermometers and tension handles and wound on an open plastic cross. e) An adequate number of ranging rods, steel and linen tapes, string lines, pegs, lines, spirit levels, survey umbrellas, lights, batteries, stores and tools. The instruments mentioned above shall be for exclusive use of the Engineer and shall remain in the custody of the Engineer till the Works are completed. The Contractor shall be solely responsible for all such instruments and equipment and shall ensure that they are at all times in good repair and adjustment, and shall make good any loss or damage howsoever caused. No extra payment shall be made on this account. On completion of the Works, the entire set of instruments provided by the Contractor shall be the property of the Employer.	As per the tender, all survey work during the entire construction period is the contractor's responsibility, and the contractor shall arrange and maintain all necessary facilities and instruments to ensure accuracy. In view of this, we request that the requirement to provide survey instruments to the Employer be excluded from the scope of work. Kindly confirm	Confirmed.

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Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
90	Volume 2 / Section 7 Page 5-7 & Part 10 B-23	**5.11 Design of plant layout: -** Minimum 900mm of paved walkway shall be provided on either side of road which shall be 300mm above the road surface **1.23 Roadways, Pathways & Hard standings : -** Minimum 900mm of paved walkway shall be provided on either side of road which shall be 300mm above the road surface	We presume that paved walkways shall be provided for connection between road and units in the plant and entire peripheral paved walkway is not required. Kindly confirm	Shall be based on Detail Engineering.
91	Volume 2 / Section 7 Part 5-5 to 5- 8 Cl.no 5.11 Design Requirements	About 36 points with respect to design requirements are mentioned in the tender clause such as: * Minimum clear distance between units/building to be maintained as 3 m * All process and non-process facilities to be provided as standalone * Plant Assets management system shall be provided and maintained throughout O&M period. *Architectural view of all process and non-process building shall reflect the current era architecture * Bird eye view of entire plant area to be provided above admin bldg. * Two access points aligned with flow direction to be provided for each process unit.	We request you to allow and consider bidder's design to meet the minimum requirements from process and operational point of view for small capacity plant like this. Please confirm.	Shall be based on Detail Engineering.
92	Volume 2 / Section 7 Part 5- 11	All channels carrying process liquid shall be fully covered with solid non-skid GRP/FRP cover access manholes (not grating) designed for human traffic live loads at a minimum and heavy vehicle live load wherever the channel crosses traffic paths.	We presume that RCC walkway is to be provided where human crossing is required and RCC slab for vehicular crossing. The entire channel cover is not required. Kindly confirm	Can be decided during Detailed Engineering
93	Volume 2 / Section 7 Part 5- 5	**5.11 Design of plant layout: -** Prior to finalizing the plant layout for approval, the contractor is required to present a comprehensive 3D model walkthrough video showcasing the entire plant layout and its facilities to the Engineer.	We request you to consider the final plant layout in the AutoCAD format copy as per standard practice. Kindly confirm.	Tender Condtions Prevails.
94	Volume 2 / Section 7 Part 5- 6	**5.11 Design of plant layout: -** A minimum 1500 mm wide continuous walkway shall be provided for walkthrough of complete liquid stream process units. This walkway shall start at the Inlet Chamber of the TSPS/STP, proceed through each process unit, and end at the Chlorine contact tank outlet channel, followed by sludge stream units, and finally terminating at the PLC/SCADA room. Where the walkway crosses internal plant roads, the crossing shall be clearly painted and marked as "WALKWAY."	The tender specifies that a minimum 1500 mm wide continuous walkway shall be provided for walkthrough of the complete liquid stream process units, starting at the Inlet Chamber of the TSPS/STP and terminating at the PLC/SCADA room, with crossings clearly marked as 'WALKWAY.' However, due to multiple internal road crossings and clear height constraints at site, provision of a continuous walkway from TSPS to the Chlorine contact tank outlet channel is not feasible. In view of site constraints, instead of continuous walkway, interconnections between units may be provided wherever feasible, as finalized during the detailed engineering stage. Kindly confirm	Shall be based on Detail Engineering.
95	Volume 2 / Section 7 Part 5- 54	Admin Building - Elevator - Three side glass capsule elevator having capacity to carry minimum Eight (8) People at a time	The Admin Building is only G+1 structure and for such low rise structure elevator is not mandatory. Kindly confirm	Confirmed.
96	Volume 2 / Section 7 Part 5- 10	For liquid-holding structures, the drain piping and fittings shall be sized such that the entire structure can be drained by gravity in no more than eight (8) hours. The Plant Drain Pumping Station, Plant Drain Pumps, and other related equipment and controls shall be designed and sized to allow draining of the structure with the largest volume from full to empty within eight (8) hours. The highest design water level (High-High Alarm) in the Plant Drain Pumping Station sump shall be at least 300 mm lower than the lowest pipe invert elevation amongst all drain pipes connecting to the sump.	With respect to drain provision clause, we request that Bidder be allowed to provide plant drain sump as per bidder's design to collect drain water from inlet pre treatment units and wash water from the dosing area. Moreover, bidder to be allowed to drain Bioreactor (Aeration tank) / Secondary biological units to adjacent tank as per process requirements using suitable capacity store standby portable pumps. All sludge units including clarifier sludge may be drained through relevant pumps and finally sent to mechanical dewatering unit. Further the chlorine contact tank can be drained to final discharge point. Kindly confirm	Tender Conditions Prevails. The proposed arrangement may be discussed during detail Engineering.

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97	Volume 2 / Section 7 Part 5-11, Part 10 B-23	Sky blue porcelain like finish (tiles) shall be provided at he following locations to ensure a clear view of the treated water, facilitating easy visual inspection. *Sky blue porcelain-like finish (tiles) for complete liquid contact area of outlet launder of secondary clarifiers including its freeboard *Sky blue porcelain-like finish (tiles) for complete liquid contact area including its freeboard for the connecting channel up to the disc filter tank. *Sky blue porcelain-like finish (tiles) for complete liquid contact area including its freeboard for disc filter tanks, including its inlet and outlet channels, and flow distribution chamber. *Sky blue porcelain-like finish (tiles) for complete liquid contact area including its freeboard for chlorine contact tanks, including its inlet and outlet channels, and flow distribution chamber. *Sky blue porcelain-like finish (tiles) for complete liquid contact area including its freeboard for final outfall structure	We request that the application of sky blue PU paint be permitted instead of tiles, as this option is operationally preferred and offers ease of maintenance for the unit. Kindly confirm.	Shall be provided at CCT and Inlet & Outlet Channels.
98	Volume 2 / Section 7 Part 5- 19	**5.13 Hydraulic design requirement:-** All corners of the channel in contact with the liquid shall be provided with the fillet having minimum radius of 150mm.	For construction ease, we request that this requirement be omitted. Kindly confirm.	Can be decided during Detailed Engineering
99	Volume 2 / Section 7 Part 5-19	**5.13 Hydraulic design requirement**:- All corners of the Bioreactor tanks in contact with the liquid shall be provided with the fillet having minimum radius of 600mm.	For construction ease, we request that this requirement be omitted. Kindly confirm.	Tender condition prevails .However where tiling is specified, it is not applicable.
100	Volume 2 / Section 7 Part 5- 20	**5.13 Hydraulic design requirement**:- All corners in contact with the liquid in sludge storage tank/sump and any other storage tank/sump shall be provided with the fillet having minimum radius of 450mm.	For construction ease, we request that this requirement be omitted. Kindly confirm.	Tender Conditions Prevails
101	Volume 2 / Section 7 Part 5- 20	**5.13 Hydraulic design requirement:-** The termination end of the all side-to-side baffle walls in the chlorine contact tank shall be provided with the semicircular end.	For construction ease, we request that this requirement be omitted. Kindly confirm.	Tender Conditions Prevails
102	Volume 2 / Section 7 Part 10B- 6 Cl.no.1.7 Dead Load	Weight of soil (irrespective of strata available at site and type of soil used for filling etc). - 20kN/m³	We understand that except for liquid retaining structures all other structures/structural elements shall be designed as per IS:456 and soil weight shall be taken from the approved geotechnical report.	As per IS latest and its amendment
103	Volume 2 / Section 7 Part 10B- 7 Cl.no.1.8 Live Load pt no (ii)	Live load on floors supporting equipment such as pumps, blowers, compressors, valves etc. - 10 kN/m²	We understand that if live load of 10 kN/m² is considered for floors with machine then machine loads need not be considered in addition. Alternatively, machine loads may be taken as per supplier's drawings and for areas other than machines a live load of 5 kN/m² may be adopted. Kindly confirm	As per IS latest and its amendment
104	Volume 2 / Section 7 Part 10B- 7 Cl.no.1.13 Joints	Expansion joints of suitable gap at suitable intervals not more than 30 m shall be provided in walls, floors and roof slabs of liquid retaining structures.	Tender specifies expansion joint at fixed interval of ≤ 30 m. However, IS 3370 clause 9.2.4 states as under: **9.2.4** Structures may be provided with movement joints if effective and economic means cannot otherwise be taken to avoid unacceptable cracking. In view of this kindly confirm that expansion joints can be omitted with consideration of temperature load.	Noted. Shall be reviewed during detailed engineering
105	Volume 2 / Section 7 Part 10B- 8 Cl.no.1.14 Design Criteria for Underground or partly underground liquid retaining structures. Pt no (vi)	Structures shall be designed for uplift in empty conditions with the water table to be considered at Finished Ground Level (FGL).	Kindly permit design for uplift in empty conditions with water table as per geotechnical report	Shall be based on actual Geotechnical Investigation during Detailed Engineering.
106	Volume 2 / Section 7 Part 10B- 9 Cl.no.1.14 Design Criteria for Underground or partly underground liquid retaining structures. Pt no (xii)	In case of Large and Deep Underground Tanks, the analysis can be carried by Finite Element Method using STAAD.Pro or any other equivalent software predominantly used and accepted in the industry.	ETABS& STAAD RCDC & SAFE software's shall be permitted for design of RCC structures	Noted, Confirmed.

Addl. Chief Engineer (WWM Project-East) BWSSB

Chief Engineer (UWP) 5th Floor, Cauvery Bhavan BWSSB

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107	Volume 2 / Section 7 Part 10B- 12 Cl.no.1.16 Design requirements	The following minimum thickness shall be used for different reinforced concrete members, irrespective of design requirements: (i) Wall for liquid retaining structure: 250 mm (ii) Roof slabs for liquid retaining structures: 200 mm (iii) Bottom slabs/Raft for liquid retaining structure: 300 mm (v) Walls of cables/pipe trenches, baffle walls underground pits etc ; 200 mm (xi) Launder slab/ baffle wall : 200 mm (Xii) Launder vertical wall, Baffle wall, Gutter slab : 175 mm (xiii) Grade Slabs : 200 mm	To ensure cost efficiency we request you to consider the following minimum thickness for different reinforced concrete members (i) Wall for liquid retaining structure: 200 mm (ii) Roof slabs for liquid retaining structures: 150 mm (iii) Bottom slabs/Raft for liquid retaining structure: 200 mm (v) Walls of cables/pipe trenches, baffle walls underground pits etc ; 150 mm (xi) Launder slab/ baffle wall : 150 mm (Xiii Launder vertical wall, Baffle wall, Gutter slab : 150 mm (xiii) Grade Slabs : 150 mm	Tender Conditions Prevail.
108	Part 10B, Particular Technical requirements for civil & structural works, page 10B-29, clause 1.34.2, Rain water harvesting system for buildings	The run off from the roof top of all buildings shall be collected to a RCC sump at suitable location in the plant area with a minimum water retaining capacity of 40Cum.	We request that rain water harvesting to be provided by connecting roofs of **major** buildings only. Kindly confirm	Tender Conditions Prevail.
109	Volume 2 / Section 7 Part 5- 6	All process and non-process facilities including but not limited to DG building, Electrical substation, Blower building, Chlorination building, and Chemical storage/preparation (like alum polyelectrolyte) buildings shall be provided as standalone, independent buildings as depicted in the typical layout of Volume 3 – Drawings unless indicated in the drawing otherwise. Proposing the buildings one above the other or combining the chemical buildings above electrical, mechanical, or above the process units is strictly not acceptable, as it creates the risk of corrosion, restricted maintenance access, ventilation conflicts, cross-contamination, and severe hazards in case of chemical leaks, spills, or fire. Such deviations compromise plant safety, reliability, and long-term operability.	We request you to allow bidder to combine and mutli floor building design for all process and non process units taking care of operational area and avoid other risk such as corrosion, ventilation, etc.	Can be only for buildings.
110	Volume-2	Approved Vendor / Manufacturer / Make List-Mechanical Equipment / Electrical / Instrumentation and laboratory items	For competitive bidding, we request you that the vendors approved in earlier and ongoing projects or having installed references in BWSSB be considered as approved for all electrical, mechanical, instrumentation and laboratory items. Kindly confirm	Tender conditions prevails. However, vendor approved in earlier projects and having installed references in BWSSB will be considered as approved.
111	Volume-2 / Section-7, Part 5 -40	n - 1 condition. The bidder shall provide calculations for operating the STP at Design flow with 1 IFAS tank/unit/module offline for maintenance	In recent released tenders such as 100 MLD Mailsandra, 100 MLD Byramangla and 100 MLD Dodaballe, n-1 condition has not been provided. Also in previous tenders of BWSSB i.e CP25 package and 10 MLD Jakkur project, Abiggere, Kogilu, Saulkere, Channasandra, Baomanahalli, n-1 condition was deleted. We request you to please delete the n-1 condition for this tender as well. Kindly confirm	Design calculations for N-1 conditions is not a mandatory.
112	Volume-2 / Section-7, Part 5 -43	5.21.1 20 MLD STP Process Air Blowers with acoustic hood , Peak Oxygen Demand Factor: 1.3	In the previously published tenders by BWSSB :- 10 MLD STP Malathahalli and 10 MLD STP Kempambudhi there was no criteria for Peak Oxygen Demand Factor. Hence we presume that the same criteria is not applicable for this project also. Kindly Confirm	Tender Conditions Prevails.
113	Volume-2 / Section-7, Part 5 -43	Design SOTE per m depth of water (Minimum to be provided and maximum to be used as design basis)-5.50 %	The SOTE of the latest advanced diffusers are achieving more than that specified in the tender. Kindly allow us to provide the SOTE per m depth of water maximum as 6% or as per diffuser manufacturer's design to take the advantage of advanced diffusers available in the market for cost optimization and better performance. The letter from the diffuser manufacturer shall be submitted during detailed engineering	Same may be discussed during Detailed Engineering.
114	Vol2, Section 7, part 11-4	Process air diffusers Maximum air flow per effective area of diffusers for design (at 20 deg C and 1 atm) shall be 70 Nm3/hr/m2	The throughput rate of diffuser varies from 60-120 Nm3/h/m2 of membrane area based on manufacturer's design and type of membrane. 70Nm3/h/m2 as mentioned in the tender is ver conservative design. We request to accept through put rate of 90Nm3/h/m2, as per manufacturer's recommendation. There are several successful installed references of diffusers with requested throughput rate in various STPs in India. Kindly confirm throughput rate of diffusers as 90 Nm2/h/m2	Range shall be 70 - 90 Nm3/h/m2 of membrane area.
115	Volume-2 / Section-7, Part 5 -48 to 5-49	Disc Filter	The given details are subject to change during the design of the disc filter We presume that the civil and tank dimensions, operating SWD, backwash pump capacity, Number, and other parameters of the disc filter shall be in accordance with the manufacturer's design standards. Kindly confirm	Tender conditions prevail. However, bidder can propose vendor specific operating SWD subject to approval during engineering.

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116	Bol 2, part 5-6	Plant Asset Management System (PAMS) shall be provided and maintained throughout the O&M period of the contract to enhance all assets (Including Civil, Mechanical, Electrical and ICA works) tracking, maintenance, and management. The PAMS shall be integrated with mobile applications and plant's PLC-based SCADA system, and shall support data export and reporting, generate unique QR codes for each asset, and facilitate maintenance management with proactive alerts.	We request that bidder be allowed to provide customized PAMS suitable for STP operation and maintenance. Kindly confirm	Can be finalised during detailed Engineering.
117	Vol2, part 5-8	Pole / Wall Mounted, outdoor LED display screen (Video wall) of size (55"each in a 2x3 display array) shall be placed near the main entrance gate to digitally display all the real-time parameters of the STP as indicated in Paragraph 5.2, 5.3, 5.4, 5.6 and 5.7 and any other information as appropriate and as directed by Engineer. For more details and requirements refer Part 13 of the tender document	Outdoor LED walls require continuous power, protection against weather, and regular upkeep, which is not cost-effective for a small-scale STP. Real-time parameters can be effectively monitored and displayed through SCADA/HMI systems within the control room. We propose removal of this requirement and acceptance of SCADA-based monitoring and reporting within the control room as sufficient to meet the tender requirements	Agreed.
118	Vol2 part 5-14	All spare requirements specified for diffuser membrane, disc filter cloth, mixers and other spare parts of electromechanical equipment's shall be instantaneous. (i.e., equal amount of used spare shall be replaced with new spares to maintain the minimum spare quantity specified in bidding document) throughout the O&M period	We request that spares be provided by bidder during O&M as per his requirement and not along with capital works. Kindly confirm	Shall be provided during O&M Period.
119	Volume 2 / Section 7 Part 5- 15, part 8-156 to 8-162	The media contact time for Odour control units (Refers to the "Duration that the odorous gases spend in contact with the media") shall be minimum 75 seconds for two-stage odour control system (Out of which, biological media shall be 60 seconds and that of activated carbon media shall be 15 seconds of contact with odorous gases), whereas minimum media contact time for single stage odour control system with only activated carbon media shall be 45 seconds. (Refer Paragraph 5.21 for type odour control units).	We request that bidder be allowed to provide odour control unit with the flow rates and all design parameters to meet the outlet guarantee as per his own design. Kindly confirm	It shall be based on Manufacturer recommendations.
120	Volume 2 / Section 7 Part 5- 16	At minimum contractor shall ensure following minimum efficiencies of pump/blower as listed below: o Submersible Pumps for TSPS shall be 70% o Submersible Pumps for other locations shall be 60% o Minimum efficiency of Axial Tubular Pump (MLR) shall be 70% o Centrifugal Turbo blower shall be 90%	We request that in certain cases if the pump/ blower manufacturer cannot meet the minimum efficiency as listed in the clause specified due to technical limitation, bidder may be given exemption for the same on case to case basis.	Tender Conditions Prevail, however Same can be discussed during detailed Engineering.
121	Volume 2 / Section 7 Part 5- 17	Respective water levels for N-1 condition, Peak flow, Average flow and Lean flow level.	We request that n-1 condition be deleted for all units. Kindly confirm	N-1 condition is not Mandatory.
122	Volume 2 / Section 7 Part 5- 18	All connecting pipes, channels shall be designed for peak flows (including recycle flows) with one unit out of service condition.	We request that n-1 condition be deleted for all connecting pipes, channels. Kindly confirm	N-1 condition is not Mandatory.
123	Vol2, part 5-13	To enhance the efficiency and to reduce the on-site installation time for the chemical dosing system, contractors are advised to consider a pre-fabricated, fully integrated, skid-mounted chemical dosing systems.	We understand this requirement is not mandatory. Bidder can provide conventional chemical dosing system instead of pre-fabricated skid mounted system	Can be decided during Detailed Engineering
124	Vol 2 , section7, part 5-12	Apart from the dedicated lay-down area for diffusers which shall be provided near the Bioreactor tanks, contractor shall also provide the dedicated working area on Bioreactor tank for proper lifting, maintenance and reinstallation of diffusers. For this, contractor shall provide minimum 2400mm clear width of operating platform on Bioreactor tank.	Replacement of IFAS bio textiles and diffusers is not anticipated in 7 years of O&M as per manufacturer. Hence dedicated working area on bioreactor tank is not required. Kindly confirm	Noted.
125	Vol 2 , section7, part 5- 20, 5-21	5.14 HAZOP studies for Proposed Works	Scope of Work: We understand that HAZOP study will be carried out during detailed engineering after approval of basic engineering package documents. However, findings of HAZOP study shall be incorporated in the control philosophy, interlocks list, cause & effect diagrams. Also, we understand that any change in specifications, scope of work for any item due to HAZOP study as against tender specifications and quoted bid price for individual items, then the cost of the same shall be reimbursed to the bidder. Kindly confirm.	Noted and Confirmed. The Plant complete Design on a minimum shall be based on minimum IO requirements to be considered as specified in the Tender document for complete safe operation of the Plant both in Manual and Auto operation.
126	Vol 2 , section7, part 5- 24	5.17.16- At the tanker filling station, a dedicated ultrafiltration unit with disinfection facilities shall be installed (Capacity shall be same as treated water transfer pumps) to ensure the treated water meets all the time stringent re-use standards and non-detectable fecal coliform levels before being loaded into the tankers. For capacity of treated water transfer pumps refer 5.21 and part 11	Treated outlet water quality after tertiary filtration provided in the tender is suitable for reuse purposes and hence dedicated ultrafiltration unit with disinfection is not necessary. Kindly confirm	Tender condition prevails.

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<tr><td>127</td><td>Vol 2 , section7, part 5- 24, 5-25</td><td>Clause 5-16 as given on page 5-24 to page 5-25 regarding “Detailed Study Report on Odour” by considering / incorporating design aspects ..."</td><td>We request that odour control unit be provided for raw sewage pumping station only and study report with the exhaustive requirement for such a small capacity plant is not required. Kindly confirm</td><td>Same shall be provided as per manufacturer Report.</td></tr>
<tr><td>128</td><td>Vol 2 , section7, part 5-26 to5-32</td><td>Locations and Frequencies for Sampling & Online Analysers/Measurements and LIMS system</td><td>Sampling / Analysis for various parameters at specified locations along with the frequency for measurement provided for O&M period is very exhaustive and is not required. Online real time monitoring of the parameters at the inlet and outlet of the plant is to be provided by bidder. Measurement of certain parameters being tested once or twice a week seems adequate. Kindly confirm that bidder to carry out analysis for only guaranteed effluent parameters at inlet and outlet only during the O&M period for submission to BWSSB. However for design and performance check, bidder may carry out analysis of other parameters as required for his own reference. Kindly confirm</td><td>Confirmed.</td></tr>
<tr><td>129</td><td>Vol2, part 5, page 5-31</td><td>The Contractor is required to validate its analysis on effluent samples once fortnightly from an approved laboratory (by Bureau of Indian Standards), which is not connected to the project.</td><td>We request frequency for validation of effluent samples be done once a month during the O&M period from laboratory which is not connected to the project.</td><td>Confirmed, The frequency for effluent sample validation shall be once per month during the O&M period</td></tr>
<tr><td>130</td><td>Operation & Maintenance requirements</td><td>sampling/analysis locations and frequencies</td><td>Kindly confirm that bidder to carry out analysis for only guaranteed effluent parameters during the O&M period for submission to BWSSB. However for design and performance check, bidder may carry out analysis of other parameters as required for his own reference. Kindly confirm</td><td>Confirmed, The frequency for effluent sample validation shall be once per month during the O&M period</td></tr>
<tr><td>131</td><td>Volume2, 8-156 to 8-</td><td>8.55 Odour control system</td><td>We request that bidder be allowed to provide odour control unit with the flow rates and all design parameters to meet the outlet guarantee as per his own design. Kindly confirm</td><td>Confirmed.</td></tr>
<tr><td>132</td><td>Part 16, Operation & Maintenance requirements, clause 16.1.1, page 16-3 and 16-4</td><td>Minimum number of staff per designation and qualifications requirements during operation service period for STP/TSPS - Experience in years</td><td>There is an acute shortage for skilled manpower in India specially in this sector. Moreover, considering the small capacity plant and acute skilled manpower shortage, we request to consider following qualification and experience for the operation and maintenance staff as under
<table>
<tr><th>Designation</th><th>Experience</th><th>Years</th></tr>
<tr><td>Plant Manager</td><td>Graduate in any field of engineering with minimum 2 years of experience in WTP/STP/ETP operations</td><td>5 years</td></tr>
<tr><td>Plant operator cum shift in incharge</td><td>Diploma in any field of engineering</td><td>3 years</td></tr>
<tr><td>Plant chemist</td><td>BSc (Chemistry / Environment / Biotechnology)</td><td>2 years</td></tr>
<tr><td>Electrician</td><td>Diploma / ITI in electrical</td><td>2 years</td></tr>
<tr><td>Instrumentation & Control Technician</td><td>Diploma/ITI in Instrumentation & Control</td><td>2 years</td></tr>
<tr><td>Fitter / Mechanic</td><td>Diploma / ITI</td><td>2 years</td></tr>
</table></td><td>Refer Addendum-1</td></tr>
<tr><td>133</td><td>Part 14, 14.35, Tests on Completion, 14.37 Sampling and Analysis- page 14-47 & 14-49</td><td>Refer sub-section of Volume 2, Section 7, and Part 5 for Sampling/Analysis Locations and Frequencies</td><td>The tests on completion are to be carried out over a period of time not exceeding six months two separate 30 days operational tests during which the sampling and analysis of the influent and effluent parameters is also to be carried out. Kindly confirm that these analysis shall be carried out in Site laboratory and samples on monthly basis may be sent to certified laboratory as approved by Engineer in charge. Kindly confirm</td><td>Confirmed.</td></tr>
</table>

Addl. Chief Engineer (WWM-Project-East) BWSSB

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BANGALORE WATER SUPPLY AND SEWERAGE BOARD (BWSSB)

DESIGN, CONSTRUCTION, AND COMMISSIONING OF 20 MLD STP BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS AT KORAMANGALA INCLUDING 7 YEARS OF OPERATION & MAINTENANCE (TURNKEY CONTRACT) – 2nd Call

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Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
134	Part 8, 8.55.6, Documentation, Pg No. - 8- 161	The following information shall as a minimum be submitted with the proposal. The accuracy and completeness of the submission of all the requested data will form part of the tender evaluation. All information shall be submitted in both hard copy originals and as an electronic copy. • Compliance statement to this technical specification. • Manufacturer company profile • Local supplier company profile • Basic description of proposed OCU system, including process flow description. • The Tenderer's Scope of Supply, including limits of contract and any assumptions made by the Tenderer. • List of main equipment items, motor list, and instrument list. • Details of media offered, including media life guarantee and data sheet. • Reference lists of similar installations demonstrating manufacturer previous experience.	We request you to allow bidder to submit these documents during detail engineering. Kindly confirm.	Confirmed.
135	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-4	D 1.00 Air Blower Building - Centrifugal Turbo Blower with VFD Control	We request you to also allow Twin / trilobe roots type blower for process air requirements along with turbo blowers. Kindly Confirm.	The blowers for Air Diffusers system shall be Turbo Blower/Tri Lobe type, Bidder shall ensure noise level as Per IS Code to be maintained, with necessary acoustic arrangement to be Provided by the bidder.
136	Volume2, part 1-6	Odour Levels at Plant Boundary (Daily maximum) : 10 parts per billion	The tender specifies that the contractor shall guarantee odour levels at the **plant boundary**. - Odour levels at the plant boundary are influenced by multiple external factors beyond the contractor's control, including wind direction, ambient temperature, humidity, and surrounding environmental conditions. Therefore, guaranteeing odour levels at the boundary is not practical or defensible. The contractor shall guarantee odour levels at the outlet of the Odour Control Unit. Odour levels at the plant boundary are subject to external environmental factors and cannot be guaranteed. Kindly confirm	Can be decided during detailed Engineering.
137	Volume2, part 1-6	Noise Levels at Plant Boundary (Daily maximum) dBA 60.00	Noise levels at the plant boundary are influenced by multiple external factors beyond the contractor's control, including ambient traffic, nearby industrial activity, wind direction, and environmental conditions. Therefore, guaranteeing absolute noise levels at the boundary is not practical or defensible. Kindly remove this requirement.	Removed at Plant Boundary.
138	Volume 1, Page 49 of 140	Form 8 A - Manufacturer authorization - In the case of a Tenderer who offers to supply and install major items of supply under the contract that the Tenderer did not manufacture or otherwise produce, the Tenderer shall provide the manufacturer's authorization, showing that the Tenderer has been duly authorized by the manufacturer or producer of the related plant and equipment or component to supply and install that item.	We request that Manufacturer authorization be provided by successful bidder on award of work only and not along with the technical bid. Kindly confirm	Confirmed.
139	Vol2, part 5	Part 5 process design criteria and minimum requirements	As the tender is invited on turnkey basis with design and engineering including civil mechanical, instrumentation and electrical works, it is crucial that tender allows flexibility for bidders to propose his own design based on his vast experience or as per criteria specified in CPHEEO/ Metcalf eddy/ International reference as per standard design practice or in some cases as per specialized equipment system manufacturer's recommendation. Therefore, please confirm that the size/volume of various units as well as equipment list with its capacity etc provided in the bid are only indicative and shall be as per bidder's design furnished for approval after award of work.	Noted. Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.
140	Vol 1, Page 122	Section 6 Contract Data - Start repayment of advance payment: Each instalment of the advance payments shall be repaid in10 (Ten equal monthly instalments, starting from first RA bill each in the amount of 10% of the amount of the mobilization advance until such time as the advance payments shall have been fully repaid.	We request you to start repayment of advance in ten (10) equal monthly instalments starting from 3rd RA bill each in amount of 10% of the amount of the mobilization advance. Kindly confirm	Tender Conditions Prevails.
141	Vol 1, Page 122	The amount to be withheld for failing to supply "As built" drawings and "Supply of Updated Operation and Maintenance Manuals" by the date required is INR 50,00,000	we request relaxation for the the amount to be withheld as Rs. 5,00,000 for failing to supply as built drawings and O&M manuals to ensure proportionality and competitiveness in bidding.	Tender Conditions Prevails.

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<tr><td>142</td><td>Vol 1, Page 124</td><td>Appendix-1 - Terms and Procedures of Payment Detailed designs and construction documents
<table><tr><th>Major Work Category</th><th>Type of Payment</th><th>Payment (in % of Total Price)</th><th>Description (Stage of Work)</th></tr><tr><td colspan="4">Designs and Documentation:</td></tr><tr><td>• Detailed designs and construction documents</td><td>LS (Each Item)</td><td>20%</td><td>Submission of Design & Drawings</td></tr><tr><td></td><td></td><td>60%</td><td>Substantial completion, submission and approval by the Employer's Representative of the designs, drawings and construction documents for all major items of work
Code B approval : 60%</td></tr><tr><td></td><td></td><td>20%</td><td>Submission and approval by the Employer's Representative of the final designs and construction documents for all remaining and miscellaneous construction details and working drawings.
Code A approval: 40%</td></tr></table></td><td>We suggest payment as under for Detailed designs and Construction documents:
a) 30% against submission of drawings b) 60% - Code B approval and c) 10% against Code A approval</td><td>Tender Conditions Prevails.</td></tr>
<tr><td>143</td><td>Vol 1, Page 125</td><td>Appendix-1 - Terms and Procedures of Payment Supply and delivery to site of mechanical and electrical equipment, instrumentation, including pipes, valves,
fittings and accessories.
<table><tr><th>Major Work Category</th><th>Type of Payment</th><th>Payment (in % of Total Price)</th><th>Description (Stage of Work)</th></tr><tr><td colspan="4">Supply and Delivery of Plant and Equipment for Incorporation in the Permanent Works:</td></tr><tr><td>• Supply and delivery to site of mechanical and electrical equipment, instrumentation, including pipes, valves, fittings and accessories.</td><td>P</td><td>60%</td><td>Progressive payment for supply, delivery to the site, proper storage and acceptance, up to 60% of the contract price for the relevant item. Supply and delivery of equipment at site shall be in line with the Civil work progress. Contractor shall not deliver equipment to site which will be idle at the site for more than three months without installation.</td></tr><tr><td></td><td>LS</td><td>20%</td><td>LS payment on successful completion of installation and erection of the relevant item.</td></tr><tr><td></td><td>LS</td><td>10%</td><td>LS payment on successful completion of the testing & commissioning, including rectifying any defects observed during this period.</td></tr><tr><td></td><td>LS</td><td>10%</td><td>Certification by the Employer on Successful completion and commissioning.</td></tr></table></td><td>We suggest payment for supply and delivery to site of electro mechanical, instrumentation and piping valves as 100 % against supply and delivery to site since the price against installation , testing and commissioning is to be quoted separately in Code 6 of the price schedule. Moreover, the recent tenders invited for 100 MLD STP at Dodaballe, Malisandra and byramangala have similar payment terms as requested. Kindly review and confirm.</td><td>Addendum-1</td></tr>
<tr><td>144</td><td>Vol 1, Page 125</td><td>Appendix-1 - Terms and Procedures of Payment Supply and delivery of equipment at site shall be in line with the Civil work progress. Contractor shall not deliver equipment to site which will be idle at the site for more than three months without installation.</td><td>We respectfully request reconsideration of this requirement, as it may restrict bidders' ability to optimize procurement and financial planning. We request that Bidders should be permitted to schedule equipment delivery in line with their financial strategy and procurement cycles. This allows for bulk procurement advantages, better cash flow management, and reduced financing costs. Kindly review and confirm our request.</td><td>Tender Conditions Prevails.</td></tr>
<tr><td>145</td><td>Volume 1, clause 37, page 67 of 140</td><td>37. Payments

37.1 Payments shall be adjusted for deductions for advance payments, other recoveries in terms of the contract and taxes, at source, as applicable under the law. The Employer shall pay the Contractor the within 60 days of submission of bill. The Contractor shall be liable to pay liquidated damages for shortfall in progress. For Progress beyond the agreed programme, payment is subject to availability of the grants.</td><td>(1) We request that employer shall pay the contractor within 21 days of submission of bill. (2) We also request that no deduction be made for liquidated damages for shortfall in progress during the contract period of capital works execution and liquidated damages may be deducted beyond agreed capital work completion date. (3) We also request you not to link the payment with the availability of grant. (4) In case of delay in payment beyond 21 days from the submission of bill, the employer shall pay interest at least as per the current RBI interest rate for the delay occured in release of the payment. Kindly confirm all above.</td><td>Tender Conditions Prevails.</td></tr>
<tr><td>146</td><td>Volume 1, clause 38, page 67 of 140</td><td>38. Compensation events</td><td>We request you to add following event in the list of compensation events (a) Delay in release of payment of monthly RA bills / final bill payment and interest applicable</td><td>Tender Conditions Prevails.</td></tr>
<tr><td>147</td><td>Part 8 General mechanical requirements, 8.22 IFAS Treatment, Pg. No. 8-82</td><td>Spare Media of 5% shall be supplied and maintained for O&M Period.</td><td>The life of Biotextile for IFAS is minimum 10 years as per our vast experience of execution of about 10 STPs ranging upto 140 MLD for quantity / quality upgradation. Hence 5% additional spare is not required. Please confirm</td><td>Shall be provided during O&M Period.</td></tr>
</table>

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Chief Engineer (UWP) 5th Floor, Cauvery Bhavan BWSSB

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Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
148	Part 8 General mechanical requirements, 8.18.5 Spare Parts, Pg. No. 8-64	Spare Diffuser quantity of 5% shall be supplied and maintained for O&M Period.	The life of Diffuser Assembly is minimum 10 years as per our vast experience of execution of about 10 STPs ranging upto 140 MLD for quantity / quality upgradation. Hence 5% additional spare is not required. Please confirm	Shall be provided during O&M Period.
149	Vol 1, Page 133, 134	Appendix 4 - Time Schedule., Milestones of Works Description	We understand that milestone given in appendix 4 is only for reference and bidder be allowed to submit his milestone of works after award of work. Kindly confirm	Bidder and BWSSB can be mutually discussed and agreed.
150	Part 8, General Mechanical requirements, Pg. no. 8-114, Consolidated Mechanical Equipment Vendor List	Approved Vendor for IFAS	We are the first in India to Install IFAS based STP Plant for Quality and Quantity upgradation from 40 MLD to 200 MLD STP during last five years. We have used Cleartec make IFAS Bio textiles media which was supplied by the system integrator M/s Ovivo. Therefore we request you to allow the make of Bio textiles media for IFAS as Cleartec.	Tender Conditions Prevails.
151	Volume 2, Part 13-35 to 13-51	Part 13, clause 13.24 Laboratory equipment and LIMS system	While LIMS is valuable for large plants with extensive datasets, its implementation in a small facility is not cost-effective. We request that bidders be allowed to propose simplified alternatives such as structured Excel-based logs that ensure traceability and compliance without the overhead of a full LIMS deployment. Kindly confirm provision of LIMS is not required and excel based logs to be used for management of data of laboratory.	Can be discussed during Detailed Engineering.
152	Volume 2, Part 13-35 to 13-51	13.24, Laboratory equipment	The tender specifies a exhaustive list of laboratory equipment to be provided for the 20 MLD scale plant. This significantly increases capital and O&M costs without proportionate benefit to plant operations. We request that bidders be allowed to provide only those laboratory instruments that are essential for measuring guaranteed effluent parameters (i.e pH, BOD, COD, TSS, TN, TP). Kindly confirm	The bidder shall consider the following to be deleted 1) Individual/benchtop, PH meter at lab 2) Portable Turbidity meter 3) Online TOC meter at lab, if the same is provided and installed as part of online multi parameter filed instrumentation.
153	Volume 1, Page 13, 14	3.1.4 Personnel Capabilities The minimum Design Staff assigned to the Satellite Office shall be as per Table below and the Office shall include sufficient administrative staff to support the office.	At present there is an acute shortage of highly skilled personnel. Moreover, considering the nature and size of project requirements, we request you to consider the experience of Project Manager as 5 years and for rest all Personnel as 2 Years experience. Kindly Confirm.	Addendum-1
154	Volume 2, part 8-82, part 8-83	8.22.1- Testing of IFAS System The contractor shall conduct thorough testing of the IFAS system components to verify performance and functionality before shipment. All inspection and testing shall be carried out in accordance with relevant Indian Standard and in absence of IS as per Detail Tender Specification or internationally approved equivalent standard. This testing shall include, but not be limited to, structural integrity, material quality, and adherence to design specifications	Performance and functionality testing of IFAS system including media is not practically possible. Only visual verification can be carried out and testing will be offered in India for such small quantity. Kindly confirm	Tender Conditions Prevails, however reviewed during execution.
155	Volume 2, section 7, Part 14, page nos part14-1 to part 14-49	Part 14 - Inspection, Testing and commissioning requirements	20 MLD project is relatively small in scale. The cost of overseas testing, inspection including visa and all logistics arrangement for such small quantity of items is disproportionate to the overall project size and budget. we kindly request removal of the requirement for all inspections at the manufacturer's facility outside India including SOTE testing for diffusers, IFAS system etc. We propose that all necessary performance validations be carried out within India during installation and commissioning, ensuring both compliance and cost efficiency. Kindly confirm	Tender Conditions Prevails, however reviewed during execution.
156	Volume 2, section 7, Part 14, page nos part14-1 to part 14-49	Part 14 - Inspection, Testing and commissioning requirements	Requirement of inspection and testing provided in part 14 of the tender document is very exhaustive and disproportionate to the overall quantity of equipments, project size and budget. We kindly request waiver of instage/ various type sof inspection requirements at manufacturer's facilities as provided in pages part 14-1 to part 14-49 and propose that inspection be restricted to major rotary items within India. This approach will ensure quality assurance while maintaining cost efficiency, practicality and the need for balanced execution.	Tender Conditions Prevails, however reviewed during execution.
157	Volume 2, section 7, Part 14, page nos part 14-44	Vibration limit specified in tender as per various standards	In last few years we have observed that many manufacturers for different electromechanical items have denied to meet the velocity of vibration specified in tender as per various standards stating that it is not applicable and in some cases not within their design, though they are in the approved list of preferred makes specified in the tender. We therefore request you to permit vibration limit as per manufacturer's design standard and vibration tests shall be carried out at site during commissioning. Kindly confirm	Can be reviewed case to case basis during detailed engineering.

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158	part 4, General requirements, clause 4.19, spare parts page 4-10, & part 5 page 5-14	Spares	Details of the spares requirement mentioned under the clause is full of ambiguity. Requirement of spares pertains to O&M contract. Moreover spares have shelf life and requirement varies as per manufacturer's requirement. Hence supply of spares along with capital works is not required. We suggest that spares to be supplied as a part of 7 years of O&M as and when required by the contractor. Kindly confirm spares to be supplied as a part of 7 years of O&M as and when required by the contractor and not along with capital works including for spares of all items specified else where in the tender.	Shall be provided during O&M Period.
159	Part -13, Sec. 13-2, Pg No. 13-4	particular requirement of instrumentation	Majority of laboratory instruments shall be provided with communication port for data transfer and can be directly connected to plant SCADA system. Hence, we understand that there is no requirement of LIMS software. Kindly confirm.	Can be discussed during Detailed Engineering.
160	Part -13, Sec. 13-2, Pg No. 13-3	particular requirement of instrumentation	Details of communication and existing protocols at shimshabhawan SCADA system/ centralised SCADA centre is to be availed for communication purpose.	Tender Conditions Prevails.
161	Part -13, Sec. 13-26, Pg No. 13-51	particular requirement of instrumentation	Realtime multiparameter analyser - These Realtime multiparameter analysers are asked to be provided at plant inlet and at outlet in the tender. It measures various parameters including TOC. Hence, we understand that a separate online TOC analyser in laboratory is not required. Kindly confirm that if TOC measurement is part of field instrumentation then it is not separately required for laboratory.	Confirmed.
162	Part -13, Sec. 13-34, Pg No. 13-71	particular requirement of instrumentation	Approved Vendor List: Sr. No. 9: Online Realtime influent & effluent monitoring system: We request to consider reputed make M/s. XYLEM/M/s. EMERSON/M/s. ENDRESS+HAUSER for this analysers.	Tender conditions prevails. However, vendor approved in earlier projects and having installed references in BWSSB will be considered as approved
163	5-14, 5-15, PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-7	Odour Control Units OCU 1 - Near TSPS OCU 2 - Near Head Works OCU 3 - Near sludge handling units	We request you to allow bidder to provide Odour Control system as per bidders design for only Pumping station near TSPS only. - Odour control systems are primarily required at raw sewage pumping stations, where sewage is confined, turbulence is higher, and anaerobic conditions can develop, leading to significant odour release. Provision of odour control units at headworks and sludge handling units adds unnecessary capital and O&M costs without proportionate benefit. In comparable STPs, odour control has been mandated only for raw sewage pumping stations, not for headworks and sludge handling units. This approach has proven effective in balancing environmental safeguards with cost efficiency. We therefore request you to confirm that odour control unit shall be provided only at raw sewage pumping station as per bidder's design and provision of odour control at headworks as well as sludge handling units is not required	Refer replies furnished elsewhere.
164	Volume 2, Part 13-55 to 13-57, Volume 1, part 5	Particular Requirements for Plant Asset Management System (PAMS) Software Plant Asset Management System (PAMS) shall be provided and maintained throughout the O&M period of the contract for 20 mld plant to enhance all assets (Including Civil, Mechanical, Electrical and ICA works) tracking, maintenance, and management. The PAMS shall be integrated with mobile applications and plant's PLC-based SCADA system, and shall support data export and reporting, generate unique QR codes for each asset, and facilitate maintenance management with proactive alerts.	A 20 MLD plant is relatively small in capacity, with limited asset inventory compared to large-scale facilities. The complexity and cost of implementing a full-fledged PAMS is disproportionate to the scale of operations and can be effectively managed through structured logs and preventive maintenance schedules. Provision and maintenance of PAMS significantly increases capital and O&M costs. We therefore request to confirm that provision of a separate Plant Asset Management System (PAMS) is not required for the 20 MLD plant.	Confirmed.
165	PART 11 PARTICULAR MECHANICAL REQUIREMENTS FOR TSPS & STP, Pg No. - 11-6	H Sludge Handling Units EOT Crane - 2.00 MT	We request you to allow bidders to provide Motorised Monorail hoist for Centrifuge Feed Pump House instead of EOT Crane. Kindly Confirm.	Agreed.
166	PART 5 PROCESS REQUIREMENT, 5.21.1, Pg No. - 5- 43	MOC of IFAS cage SS 316	We request to allow bidder to consider MOC of SS 304 for IFAS cages as it meets sewage service requirements and ensures cost-effective execution of the project. Kindly Confirm.	Tender Conditions Prevails.
167	PART 5 PROCESS REQUIREMENT, Pg No. - 5- 55	List of Flow Measurements	There is an exhaustive list of points for flow measurement provided in the tender. For a plant of this capacity, flow measurement at multiple intermediate points adds unnecessary complexity. - Flow measurement at the inlet and final outlet is sufficient to ensure compliance with performance requirements and operational monitoring. We kindly request confirmation that flow measurement limited to the inlet and final outlet using ultrasonic flow meters will be acceptable in lieu of the exhaustive list of flow measurement points provided in the tender. Kindly confirm.	Tender constion Prevails, however Tenderer to consider as below, 1. Upto Pretreatment - 2 Nos. 2. For Scum - Deleted 3. For Centrifuge and Poly - at Common discharge Header 4. RAS flow measurement from each secondary clarifier - Deleted 5. Common Disc Filter Bypass flowmeter - deleted. 6. Bypass measurement shall be Ultrasonic.

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<tr><td>168</td><td>Part 5 Process requirements, Table 5.21.1, Pg. No. 5-43,</td><td>IFAS Media
<table><tr><td>IFAS Media</td><td></td><td></td></tr><tr><td>IFAS media type</td><td></td><td>Aerobic, Submerged high-density bio-textile IFAS media in SS 316 Cages</td></tr><tr><td>IFAS media life (Minimum)</td><td>Years</td><td>20.00</td></tr><tr><td>IFAS media location in aerobic zone</td><td></td><td>Mostly, IFAS media shall be placed in middle two-third of the aerobic zone. And no media shall be placed in last one-fourth of the aerobic zone</td></tr><tr><td>IFAS cage arrangement in aerobic zone</td><td></td><td>Staggered arrangement</td></tr><tr><td>MOC of IFAS cage</td><td></td><td>SS 316</td></tr><tr><td>Minimum thickness of cage used for IFAS media</td><td>mm</td><td>6.00</td></tr><tr><td>Minimum Void Fraction of IFAS media</td><td>%</td><td>90.00</td></tr><tr><td>Minimum density of IFAS media</td><td></td><td>0.97</td></tr><tr><td>Maximum attached MLSS on IFAS media</td><td>mg/L</td><td>2000.00</td></tr><tr><td>Solid loading rate on IFAS media (Maximum)</td><td>g/m2</td><td>45.00</td></tr><tr><td>Effective area of IFAS media (Maximum)</td><td>%</td><td>65.00</td></tr><tr><td>Spare IFAS media (Minimum)</td><td>%</td><td>5.00</td></tr></table></td><td>We request you to allow the bidder and technology provider to design the IFAS system and BNR removal system having solid loading rate as 55 g/m2 to optimize the cost. Kindly Confirm.</td><td>Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.</td></tr>
<tr><td>169</td><td>Part 5 Process requirements, Table 5.21.1, Pg. No. 5-44,</td><td><table><tr><td>Process Air Blowers with acoustic hood</td><td></td><td></td></tr><tr><td>Oxygen demand at average flow (AOTR)</td><td>kg/d</td><td>11350.00</td></tr><tr><td>Peak Oxygen Demand Factor</td><td>-</td><td>1.30</td></tr><tr><td>Oxygen demand at peak flow (AOTR)</td><td>kg/h</td><td>615.00</td></tr><tr><td>Aeration system sizing basis process liquid temperature</td><td>°C</td><td>27.00</td></tr><tr><td>Minimum DO Level of Aeration basin</td><td>mg/L</td><td>2.00</td></tr><tr><td>α: Oxygen Transfer Correction Factor</td><td>-</td><td>0.60</td></tr><tr><td>β: Salinity - Surface Tension Correction Factor</td><td>-</td><td>0.95</td></tr><tr><td>F: Fouling Factor</td><td>-</td><td>0.80</td></tr><tr><td>Effective Aeration Depth</td><td>m</td><td>5.75</td></tr><tr><td>AOTR / SOTR Ratio</td><td></td><td>0.399</td></tr></table></td><td>We request you to allow the bidder to consider the Fouling factor as 0.92 as per his own design.</td><td>Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.</td></tr>
<tr><td>170</td><td>8.7 Sluice Gate & Weir Gates</td><td>Sluice Gate & Weir Gates</td><td>We request you to allow Open Channel gates for Isolation application of flow instead of Sluice Gates/ Thimble Mounted Gates. Kindly Confirm.</td><td>Tender conditions prevails.</td></tr>
<tr><td>171</td><td>Volume 2 / Section 7
Part 5 5.13 Hydraulic Design Requirement,
Pg. No. 5-18,</td><td>All flow distribution boxes shall be equipped with adjustable weir plates attached to the RCC weir wall to ensure equal flow distribution to each side of the weir. These weir plates shall be made of SS 316 material, with a minimum thickness of 6mm and a height of 300mm, and shall be capable of adjusting at least 75mm in height.</td><td>We request you to allow MOC of weir plates as FRP 6 mm thick adjustable type weir plates instead of SS-316 Weir plates to optimize the cost of the work. Kindly confirm.</td><td>Bidder can propose SS304.</td></tr>
<tr><td>172</td><td>Volume 2 / Section 7
Part 10B-31 Clause no 1.37 Pile Foundation</td><td>A minimum of three piles are required under a column in order to resist all the column loads and moments acting on it. If one or two piles are provided under a column, the grade beams have to be provided in one or more directions which have to be designed to resist fully column basements since piles shall resist the vertical loads only.</td><td>Pile foundation shall be in accordance with IS 2911 and geotechnical report. Also the number of piles under column and requirement of grade beams shall be as per bidder's design. Kindly confirm.</td><td>Pile foundation shall be in accordance with IS 2911 and geotechnical report.</td></tr>
<tr><td>173</td><td>Volume 2 / Section 7
Part 10B-8 Clause no 1.14 Design criteria for Underground or Partly underground Liquid Retaining structures pt no (i)</td><td>Liquid depth up to full height of wall: no relief due to soil pressure from outside to be considered.</td><td>Wall design condition shall be consider as "Liquid depth up to full height of wall: no relief due to soil pressure from outside to be considered or service water level + 500 mm free board whichever lower". Kindly confirm</td><td>Tender conditions prevails, however can be discussed case to case basis.</td></tr>
</table>

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BANGALORE WATER SUPPLY AND SEWERAGE BOARD (BWSSB)

DESIGN, CONSTRUCTION, AND COMMISSIONING OF 20 MLD STP BASED ON INTEGRATED FIXED FILM ACTIVATED SLUDGE (IFAS-PROCESS) WITH BNR, TERTIARY TREATMENT AND ODOUR CONTROL UNITS AT KORAMANGALA INCLUDING 7 YEARS OF OPERATION & MAINTENANCE (TURNKEY CONTRACT) – 2nd Call

REPLIES TO PREBID QUERIES, PRE BID MEETING DATED: 19.01.2026

Sr. No.	Vol.No. / Pg. No.	Description	Bidders Query	BWSSB Replies
174	Volume 2 / Section 7 Part 10B-8 Clause no 1.14 Design criteria for Underground or Partly underground Liquid Retaining structures pt no (xi)	All the liquid retaining structures shall be design for maximum design crack widths of 0.1mm for direct tension and flexure.	All the liquid retaining structures shall be design for maximum design crack widths of 0.2 mm for direct tension and flexure as per IS 3370. Kindly confirm	Tender conditions prevails.
175	Volume 2, part 3-30	3.18: Submission of documents and drawings	Requirement for submission of multiple hard copies of documents and drawings mentioned in the tender is excessive and not sustainable. A limited number of hard copies (for statutory records and essential site use) is sufficient, while digital copies can serve all other stakeholders. We request that all types of documents & drawings for all revisions be submitted in 3 copies and final A code approved document can be submitted in hardcopy as well as digital copy.	Submission shall be of Five (5) Copies.
176	Volume2, part 18, part 18-1 to part 18-12	Environment management and monitoring plan	For a 20 MLD STP, the level of detail prescribed in the EMP is disproportionate to the project size and scope. We kindly request deletion of the exhaustive EMP requirements. Kindly confirm	Tender conditions prevails.
177	Volume 2, part 5 and part 8 (pages part 5-43,	Maximum attached MLSS on IFAS media	For better design and process optimization, we request bidder to be allowed to design as per Metcalf eddy / CPHEEO/International reference. Kindly confirm	Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.
178	Volume2, part 7-10, part 13	Laboratory equipment The agency shall have executed & completed at least five projects forsetting up ofSTP/Drinking water lab &testing facility within India in Public-sector units/Govt.agencies during the lastfiveyears period, inclusive of supply, installation, commissioning of the laboratory equipment. Verification end user performance certificates shall be submitted for the same.	We have executed several STPs all over India with laboratory and have extensive experience in last 46 years. Part 13 categorically states to submit credentials of the agency for laboratory. We request that requirement of specific agency to set up laboratory be removed and confirm that bidder can execute the work without requirement of any separate agency.	Agreed.
179	Volume2, part5-43, part 8-82	Specifications of IFAS media as given on page par 8-82 and part 5-43	Specifications of IFAS media as given on page part 8-82 and part 5-43 mentions density of approximately 0.97g/cm3 which means we are allowed to use plastic carrier media. We are executing 90 MLD IFAS project of STP at Surat with same media which is about to be completed. Even Metcaff and Eddy mentions use of plastic media for IFAS system against representative design condition for IFAS system with nitrification. Kindly confirm bidder is allowed to use either bio textile or plastic carrier media and design in line with from Metcalf Eddy/ International references	Not acceptable. Tender conditions Prevails.
180	Volume2, , part 8-82	IFAS System - Total biomass (suspended + attached) in the system shall not exceed 4500 mg/L.	We request bidder be allowed to provide total biomass (suspended + attached) in the system not exceeding 6000 mg/L for optimized performance and design.	Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.
181	Volume 2, part 5 (all pages)	Part 5 Design sizing and criteria	As the tender is invited on turnkey basis with design and engineering including civil mechanical, instrumentation and electrical works, it is crucial that tender allows flexibility for bidders to propose his own design based on his vast experience or as per criteria specified in CPHEEO/ Metcalf eddy/ International reference as per standard design practice or in some cases as per specialized equipment system manufacturer's recommendation. Therefore, please confirm that the size/volume/design criteria of various units as well as equipment list with its capacity etc provided in the bid are only indicative and shall be as per bidder's design furnished for approval after award of work. Kindly confirm.	Bidder to note that any change in number of units as specified in the tender will not be allowed. The units, size volumes, equipment capacities and system configurations should be as per CPHEEO / international standard references and with respect to tender specifications and complying to the performance criteria as specified in tender.
182		Odour Levels at Outlet of Odour Control Units (Daily maximum): 100 ppb. Odour Levels at Plant Boundary (Daily maximum): 10 ppb.	IT SHOULD BE 0.001 AT THE BOUNDARY. ODOUR LEVEL AT THE STACK SHOULD BE 10 PPB	Tender Conditions Prevails.
183		In Stage 2, the remaining H2S and other odorous compounds are further removed using pelletized activated carbon made from coconut shells, specifically chosen for its efficacy in wastewater Odor removal applications. This media is water re-generation-safe, which enhances the longevity and efficiency of the odour control system.	It should be coal-based carbon, having high density, and the H2S adsorption rate should be 0.6 g/g.	Tender Conditions Prevails.
184		Removal Efficiency Hydrogen Sulphide >99%	THE REMOVAL EFFICIENCY SHOULD BE GREATER THAN 99.5% BECAUSE WE HAVE DUAL STAGE SYSTEM	Tender Conditions Prevails.
185		First stage biological scrubber shall consist of media for bacterial growth which shall be made of inert material, porous designed to resist compaction and degradation acidic environment. Media shall meet following minimum criteria:	**Stage 1:**	Tender Conditions Prevails.

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		Material: Inert mineral porous media	The system is designed to remove hydrogen sulphide (H2S) by providing an environment providing the growth of acidophilic, sulphur oxidizing bacteria. The system consists of Bio media, the bio-media shall be durable, bio-inert, plastic, and structured media with high surface area. Other medias including mineral media, clay, woodchip, polyurethane foam, polypropylene net rolls, coals, peat and heather and seashells shall not be used for the following reasons:	
		Particle size: 15–60 mm	• Instability at low pH.	
		Bulk density: 180–320 Kg/m³	• Poor composition, medias are unable to withstand high H2S loading.	
		Water adsorption: 15–20%	• Low removal efficiency, limited to 75% of H2S.	
			• Considerably short life design life.	
			• Compaction due to biomass growth, resulting in lower void fractions, blockage, channelling problems, and eventually high gas-phase pressure drop causing extreme high initial and operating costs.	
			Bio-media specifications:	
			• Bulk density: 100–150 kg/m³	
			• Surface area: 500–750 m²/m³	
			• Void volume: 0.93 m³/m³	
			• Pressure drop: < 250 Pa	
			• Material of Construction: Polypropylene only. uPVC or Polyurethane materials shall not be used	
			• Minimum design life: 20 Years minimum	
			• Media shall resist compaction or swelling due to varying moisture levels and shall not degrade or shrink when subjected to low pH conditions. Media shall be easy to install and installed with minimum potential for short circuiting. Media shall facilitate uniform distribution of irrigation water and air distribution over entire media area.	
			• Bio-media characteristics… (FULL TEXT INCLUDED AS GIVEN)	
186		Second stage shall be based on Activated carbon, media shall be derived from virgin coconut shells, pelletized to suit the application. Water regenerable. Minimum life 5 years. Specifications: Coconut shell based, CTC 50, 4 mm, density 450–50 kg/m³, hardness 95, moisture 10%, H2S capacity 0.16 g/cc.	**Stage 2:**	Tender Conditions Prevails.
			It is used to remove any remaining hydrogen sulphide as well as other odorous compounds. The second stage media shall be pelletized activated carbon, coal-based specially made for wastewater odour removal application.	
			Guidance for Air contaminants and quality requirements:	
			• Inlet H2S: Peak 100–150 ppm, Avg 100 ppm	
			• Outlet H2S concentration: <0.1 ppm	
			• Removal Efficiency: >99.9%	
			• Flow rate: Minimum 4–6 airspace volume/hr	
			• Design Ambient temp: 10–50°C, Humidity: 0–100%	
			Carbon Specifications:	
			• Carbon substrate: As per manufacturer design	
			• Regeneration: On-site water regenerable only	
			• CTC ≥55	
			• Mean particle diameter 4 mm	
			• Density 450–50 kg/m³	
			• Hardness 95	
			• Moisture 15%	
			• H2S capacity ≥0.3 g/cc	
187		Vessels & fittings: Vinyl ester FRP; blower-assisted system; FRP pre-filter; VFD blowers; portable H2S meter. The Control panel shall be IP54 suitable for indoor or inside air-conditioned kiosk to avoid direct sunlight on the control panel.	**BUT IT SHOULD BE:**	Tender Conditions Prevails.
			• Vessel: Vinyl ester FRP	
			• Fan assisted system: All parts exposed shall be **316L SS or PP**, motor sealed	
			• Dedicated nutrient dosing set with mixing tank and duty/standby pumps	
			• Recirculating system shall not be used	
			• pH sensor of drain water shall be considered	
			• Fan motors: Belt/direct drive, **ATEX Zone 2, IE3, VFD controlled**	

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			• Sample probes: Three per bed with uPVC valves • Differential pressure switch across fans • Differential pressure gauge for each vessel • H2S monitor: Fixed inline detector at second-stage discharge stack • Control Panel: Control panel housing shall be made of FRP cabinet, operational parameters control shall be with PLC & HMI and shall be connected to Main SCADA of the plant. • Odour chambers/tanks covered with PP/FRP removable sheet	
188		Manufacturer Experience & QA: Must be Indian origin, facility in India, ISO 9001:2015, media test facility, 10 global installations + 5 in India (last 5 yrs).	It should be generalized — global experience should be considered, not specifically 5 installations in India. There is no need for Indian origin or for having a facility in India. Any manufacturer with global experience and globally approved quality should be considered. Any manufacturer with similar kinds of installations globally shall be accepted	Tender Conditions Prevails.

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